General Practice Clinics

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REYNOLDS HAYDEN, M.D., F.A.C.S.
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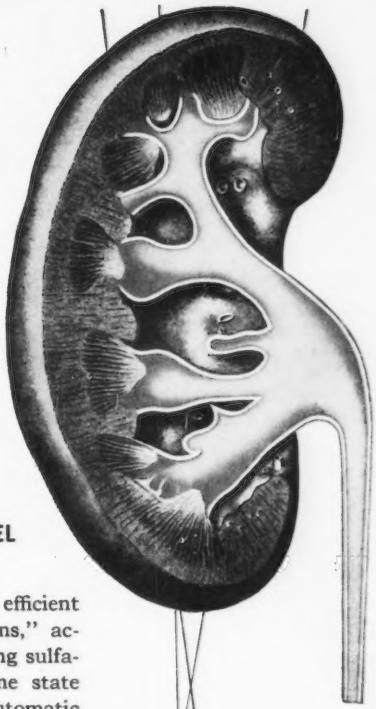

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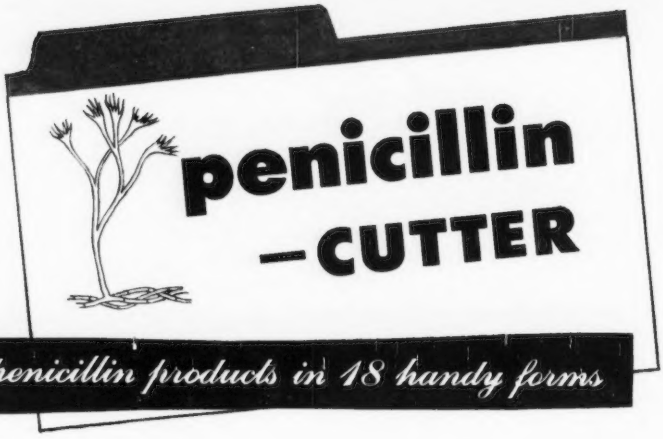

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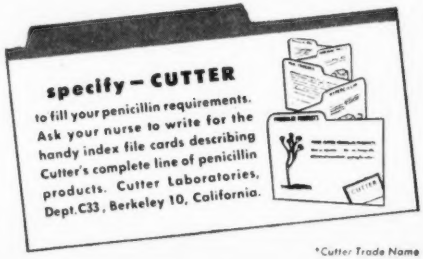

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EDITORIAL

MYANESIN

This is a new curare-like drug which was discovered by F. M. Berger and W. Bradley in England in 1946. Myanesin is the trade name of the British drug houses for α-β-dihydroxy-γ-(2-methylphenoxy)-propane. The drug has been approved by the Food and Drug Administration and is being marketed in this country by Squibb and Sons under the name of Tolserol. It is a colorless, odorless, crystalline solid which melts at 70 to 71 C. and is soluble in water in the proportion of 1.09 Gm. to 100 ml. water at 22 C. It is soluble in alcohol and propylene glycol. Solutions of Myanesin are stable, unaffected by light, heat, dilute acids or alkalis and are freely miscible with solutions of sodium chloride, glucose and barbituric acid derivatives. It is supplied in 10 ml. ampules of 10 per cent solution, strength of the solution being 100 mg. of Myanesin for each cubic centimeter. In considering dosage, it should be remembered that the strength of Intocostrin and Squibb's *d*-Tubocurarine solution is 2.7 mg. of *d*-Tubocurarine or 20 units of Intocostrin per cubic centimeter. Solutions of Abbott's *d*-Tubocurarine have a strength of 3 mg. per cubic centimeter and Burrough's and Wellcome's Tubarine contains 10 mg. of *d*-Tubocurarine chloride per cubic centimeter.

Myanesin causes muscular relaxation and paralysis without embarrassing respiration. It is an anticonvulsant with a selectively depressant action upon the central but not the peripheral nervous system. It is not an anesthetic but increases the depth and duration of barbiturate anesthesia. Clinical use of Myanesin under similar conditions in which curare would ordinarily be used showed it to be an effective muscle relaxant if sufficient quantity was given. The average dose was 8.7 cc. (870 mg.) but it was often necessary to give repeated doses up to a maximum of 25 cc. to produce curare-like relaxation. Duration of anesthesia varied as with curare but was no longer than that obtained with a single dose of curare. Cyclopropane was the most commonly used anesthetic. Respiratory depression was as common as with curare but was never prolonged or harmful and responded to the same treatment. The amount of muscle relaxation produced by a given dose seemed to vary with existing depth of anesthesia. There has been no evidence of selective action on the abdominal muscles. Addition of Myanesin to a light dose of pentothal or nitrous oxide did not produce any more profound relaxation than would curare. Myanesin mixes well with pentothal but is apparently no more effective than curare with barbiturate anesthesia. The relaxing effect of 10 cc. of

the drug is about equal to that of 3 cc. (100 units) of Intocostrin. Griffith and Cullen,[1] summarizing results in one hundred and twelve administrations of Myanesin, conclude that it has definite advantages over curare in having a greater margin of safety, producing abdominal relaxation in the conscious patient without distress and full doses not being followed by intercostal paralysis. It is still experimental and should only be administered by the expert anesthetist.

Myanesin is usually administered intravenously in 2 per cent solution in normal saline. A 10 per cent solution caused a significantly high incidence of phlebitis, hemolysis and hemoglobinuria. Bradycardia and symptoms of partial heart block have also been reported[3] after the third injection (17 ml.) of a 10 per cent Myanesin solution, the drug apparently exerting a toxic effect upon the heart itself or through the cardiac autonomic nerves. Oral administration requires large doses while intramuscular injections of more than 2 per cent solutions cause severe inflammatory tissue reactions and necrosis. The amount and bulk of 2 per cent solution required prohibit its use intramuscularly.

A serious disadvantage to the use of Myanesin is the occasional occurrence of a local irritation in the vein at or above the injection site. Four cases of thrombophlebitis occurred in one hundred and twenty administrations and transitory sore arm occurred in 7 of forty administrations. Composition of the Myanesin solution has not been published so it is unknown whether this irritative action results from the drug or the solvent. It has been noted that blood withdrawn into 10 per cent Myanesin solution in connection with intravenous injections immediately became chocolate colored and appeared to coagulate. Laboratory experiments showed that little or no change occurred with lower concentrations but marked changes occurred when blood and higher concentrations of Myanesin were mixed. Hemolysis developed, while the blood apparently curdled and might even turn solid with still higher concentrations. This effect usually promptly developed when Myanesin and blood came in contact. Experiments indicated that this curdling was not produced by the effect of Myanesin upon the blood, plasma, serum or heparin but that the Myanesin itself was physically changed and precipitated by some blood constituent. A case of gangrene following the intra-arterial injection of Myanesin is reported in which 10 ml. of a 10 per cent Myanesin solution which had been used previously without ill effect was injected into the median basilic vein to give more abdominal relaxation. Gangrene of the forearm and entire hand developed, amputation 3 inches above the elbow being necessary. Histologic examination showed an unorganized antemortem thrombus in the upper end of the brachial artery, some of the solution having evidently been injected into the artery instead of the vein. This complication of venous irritation is sufficiently serious to force the conclusion that Myanesin is not at present a satisfactory substitute for curare in clinical anesthesia.[2]

Excellent relaxation of certain neuromuscular abnormalities in adult human beings has been reported following intravenous doses of 50 to 150 cc. of 2 per cent Myanesin solution.[4] Administration is usually commenced in

the antecubital vein at a rate of about 30 drops a minute and increased to 40 drops if no unusual reactions occur after one minute. It is continued at that rate until a therapeutic effect or certain side reactions occur. The drip rate is then readjusted to maintain an effective level without side reactions. The patient is tested before and during injections for the presence of horizontal and vertical nystagmus. Rotary and true vertical nystagmus usually develop as effective therapeutic levels are reached. There may be complaint of blurred vision, a warm feeling and often a circumoral numbness or feeling of pins and needles with dryness of the mouth. The systolic blood pressure drops about 30 mm. Hg and corneal injection appears followed by relaxation, drowsiness and sometimes an apparently natural sleep. Nausea occasionally occurs but chiefly with oral administration. Rapid administration of the drug in the presence of these symptoms may be followed by increased reflexes and decerebrate rigidity.

Clinically, acute muscle spasm has been promptly relieved by the intravenous administration of 2 per cent solution of Myanesin. Its temporary action materially limits its use in the treatment of chronic disabilities like spasticity. Cases of rigidity seem especially sensitive to Myanesin, the rigidity being almost completely released and motor apparatus practically restored to normal during the effective period of the drug. Tremor and involuntary movements are also rapidly relieved but more slowly than rigidity. The general effect does not last more than forty-five minutes after therapeutic levels disappear from the blood stream. Patients with acute athetoid crisis were completely freed of motor activity during and for forty-five minutes after administration of the drug. Pain and deformities with true root compression were often completely relieved but the pain always returned after effect of the drug disappeared. Intravenous administration in acute Marie-Strumpell arthritis was followed by complete relief from pain and ability to freely flex and extend the extremities and truncal muscles within thirty seconds after the appearance of vertical nystagmus. The intravenous injection was stopped after 150 cc. had been given. The patient then had a normal motion range and could be carried without pain. The underlying neural mechanism of parkinsonism reportedly seems especially susceptible to the drug.

Myanesin has been reported to be especially useful as a relaxant in children.[5] Dosage was 2 ml. per 6.35 Kg. of body weight. It was injected into the intravenous drip if one was being given and otherwise into the longitudinal sinus at the posterior angle of the anterior fontanelle, the sinus being wider there than anteriorly and the bony formation directing the needle automatically into the vein. Excellent results followed its use in 16 cases of intussusception, 16 of pyloric stenosis and 12 of appendicitis in children between 24 days and 4½ years old. Ether was used as the general anesthetic, little being required after the peritoneum was opened. Good relaxation rapidly developed and lasted ten to twenty-five minutes after injection so that a second dose was unnecessary except in prolonged operations. About one-third of the cases developed respiratory depression for fifteen to thirty seconds and 1 case had complete respiratory inhibition for a half minute but respirations became normal after the initial depression in all cases. There was

no appreciable effect upon the pulse rate. Curare also produces good relaxation but accompanying serious respiratory depression is common.

Good results following oral administration of Myanesin have been reported in cases of spastic and hyperkinetic disorders.[6] The drug was given in 3.3 per cent solution (weight in volume) in 20 per cent aqueous propylene glycol (volume in volume), 20 per cent solution of wild cherry being added for taste. Adult dosage was 30 cc. of the mixture or 1 Gm. of Myanesin. Children received proportionally smaller amounts. Effect of the drug upon the muscle was recorded by electromyograms taken before and thirty to sixty minutes after administration. Abnormal muscular discharges disappeared five to twenty minutes after the drug was given. Spasticity simultaneously decreased, while pain and involuntary movements were relieved. Metabolic products of Myanesin appeared in fifteen minutes, showing its rapid absorption after oral administration. Remarkable recovery of some of the voluntary movements of paralyzed limbs occurred ten to twenty minutes after ingestion of the drug by cases of hemiplegia who had been unchanged for four to seven years. Best results were obtained two or three days after the treatment was started and were maintained by three to five 1 Gm. doses daily. Myanesin apparently reduced spasticity and caused the exaggerated reflexes in these cases to return to normal without affecting voluntary reflexes.

The drug was also effective in spastic, athetoid and choreiform types of cerebral diplegia. Spasticity was diminished, manipulation of spastic limbs made easier and physical performance improved. Benefits vary with cerebral localization of the lesion. The tremor and rigidity of Parkinson's syndrome were reduced by oral administration of the drug but the effects were not as good as after intravenous administration. Best results were obtained by combining Myanesin with the atropine class drugs. Other conditions accompanied by muscle spasm such as arthritis of the cervical spine, subacromial bursitis, low back pain, osteoarthritis of the hip joint, etc. were also benefited.

Results obtained in these cases were produced by the selectively depressant action of Myanesin upon the central nervous system. No side effects followed oral administration though it was given some patients continuously for five weeks. Much better results were obtained than with curare, erythroidine, neostigmine or other known remedies. These cases showed that the oral use of Myanesin produced most of the beneficial effects obtained by the intravenous administration but without the undesirable side effects. The drug was well tolerated for weeks and benefited several previously intractable cases.

These studies indicate that further trial of Myanesin is warranted in the treatment of true muscle spasm but it seems of limited clinical value in other neuromuscular conditions.

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Isuprel. Virginia M. Monthly 75:563, November 1948.

This new drug, introduced in 1948 by Winthrop-Stearns, Inc., controls asthma under anesthesia, thus removing a serious hazard for asthmatic patients undergoing surgery. Dr. M. S. Segal of the Boston City Hospital reported that Isuprel gave dramatic relief to asthmatic patients. Doctors E. N. Cohen and F. Van Bergen reported in the Bulletin of the University of Minnesota Hospital and the Minnesota Medical Foundation that the drug gave complete relief to asthma during surgical operations and postoperative periods. Isuprel is administered by intravenous injections. Initial doses were 0.16 to 0.02 mg. and the maximum total dosage was 0.068 mg. All cases showed a minimal rise in pulse rate and blood pressure.

MEDICINE

Observations on the Use of the Respirator in Refractory Status Asthmaticus. *Morton F. Reiser and Eugene B. Ferris, Jr., University of Cincinnati College of Medicine, Cincinnati, O.* Ann. Int. Med. 29:64-70, July 1948.

The use of anesthesia plus the Drinker Respirator for artificial respiration, with active support of expiration, is suggested as an additional tool in the armamentarium of therapy for acute status asthmaticus. The pathologic physiology of acute intractable asthma is discussed in relation to the rationale of this form of treatment. Three cases treated in this manner are presented and in each, prompt and satisfactory relief of anoxemia was accomplished and maintained until bronchiolar spasm had undergone remission. While it is admittedly impossible to draw any conclusions from limited experience such as this, we feel that the rationale is sufficiently clear and the results insofar as relief of anoxemia is concerned, are gratifying enough to warrant its use in refractory status asthmaticus. From our experience it is felt that it is of utmost importance that the therapy be instituted early in the course before irreversible changes have appeared or other grave complications have had time to gain foothold. This maneuver is not suggested as a substitute for other well-established methods of treatment but rather as an adjunct to them in refractory cases. 6 references.—*Author's abstract.*

Success with Oral Mercurial Diuretic. *Harry A. Solomon, Bellevue Hospital, New York, N. Y. and Albert Abraham, Morristown, N. J.* New York State J. Med. 48:1593-95, July 15, 1948.

Oral mercuhydrin is effective and at times indispensable in the treatment of congestive heart failure, whether potential or severe. It is easy to administer and eliminates the necessity for parenteral mercuhydrin with certain of its potential hazards and inconveniences. Many of the bad effects attributed to oral mercuhydrin result from inadequate trial and improperly ascribing certain symptoms due to other conditions such as digitalis poisoning to this diuretic. A severe and resistant case of congestive heart failure responding to oral mercuhydrin was described in detail. 1 figure.—*Author's abstract.*

Lung Abscess Following Electro-Convulsive Therapy. Description of a Case. *Hugh Conway, Western Infirmary, Glasgow, Scotland and Humphry Osmond.* J. Ment. Sc. 94:653-56, July 1948.

A case of schizophrenia is described in which a lung abscess developed after the fifth convulsion of an ECT sequence. The patient, who was treated for a Vincent's infection of the gums before the beginning of the course, developed fever, leukocytosis and respiratory symptoms; lung abscess was diagnosed radiologically. Physical examination of the lungs was negative throughout. A chest roentgenogram taken before treatment was clear. The immediate response to treatment with penicillin and postural drainage was good but relapse occurred a few months later. The authors could find only 1 previously reported case in the literature. They stress the importance of

preliminary dental examination when ECT is being considered and emphasize the difficulty of diagnosing a lung complication in an uncooperative, apathetic patient. The effect on prognosis is discussed; a vicious circle is established—ECT must be abandoned with consequent deterioration of the mental state, and the resulting apathy and immobility affect the recovery of the pulmonary condition. 8 references.—*Author's abstract.*

Vaccination Against Influenza A. *Helen Mellanby, C. H. Andrewes, J. A. Dudgeon and D. G. Mackay, National Institute for Medical Research, London, England.* Lancet 1:978-82, June 26, 1948.

During the winter of 1946 to 1947, an effort was made to test the value of influenza vaccination in Britain. The vaccine used was made from infected allantoic fluids and activated with 1:2,000 formalin and concentrated by Francis and Salk's method. There were 20,000 subjects and 20,000 controls. In boarding schools, the incidence of influenza was 11 per cent in the vaccinated subjects and 21 per cent in the controls. An outbreak of upper respiratory disease was noted in only 3 of 18 army training centers whose personnel received the inoculations. Although the results were much less encouraging than those reported in 1944 and 1946 from the United States, there is some indication that the influenza occurring in 1947 was antigenically rather remote from the strains contained in the vaccine. Additional studies, particularly of antigenic relations among strains of influenza viruses, are needed before the general use of influenza vaccines may be advocated. 14 references. 3 figures.

Activity of Microbial Animal Protein Factor Concentrates in Pernicious Anemia. *E. L. R. Stokstad, Ph.D., A. Page, Jr., B.S., J. Pierce, M.S., A. L. Franklin, Ph.D. and T. H. Jukes, Ph.D., Pearl River, N. Y. and R. W. Heinle, M. Epstein and A. D. Welch, Cleveland, O.* J. Lab. & Clin. Med. 33:860-64, July 1948.

A concentrate of the animal protein factor prepared by fermentation procedure was effective in producing a hematologic response in pernicious anemia. This concentrate was prepared by growing a bacteria isolated from hen feces. The preparation gave a growth response in chicks grown on a high soybean diet which has been previously showed to be deficient in the animal protein factor. This fermentation product was 50 to 100 per cent as active for chicks as a refined liver extract containing 10 U. S. P. units of the antipernicious factor per milliliter. Injections of 1 ml. per day of this concentrate to 2 patients produced reticulocyte peaks of 20 and 9.7 per cent with a rise in hemoglobin and red cell count. 9 references. 2 tables.—*Author's abstract.*

Present Status of Gold Therapy in Rheumatoid Arthritis. *H. P. Wright, Montreal, Que., Canada.* Canad. M. A. J. 59:359-63, October 1948.

The two most commonly used gold salts are myochrysine and solganol-B. oleosum. Each is soluble and contains about 50 per cent of gold. Colloidal and insoluble preparations are generally speaking unsatisfactory. Use of these

salts is still experimental and requires experience and constant laboratory supervision. Chrysotherapy is now generally considered the best treatment for this disease when combined with general measures. It in some way decreases or arrests inflammatory processes in many cases of rheumatoid arthritis but will not repair damaged cartilage or bone, reconstruct joints nor rehabilitate crippling arthritic deformities. Most benefit from it is reaped by patients with active rheumatoid arthritis, preferably early. The inherent toxicity of chrysotherapy unfortunately makes it unsuitable for use except by practitioners with special experience. The modern trend, however, is for group treatment for best results. So far as risk of the treatment is concerned, its mortality is no more or as much as cholecystectomy or hysterectomy, both common procedures.

There are some differences in actual treatment, myochrysine being used by some and solganol-B. oleosum by others. There has been no apparent difference in therapeutic effects. All injections are given intramuscularly at weekly intervals. The first dose is 10 mg., the second 25 mg. and the third and subsequent doses 50 mg. until a total of 985 or 1,035 mg. has been given. This requires twenty-one or twenty-two weeks' treatment. Doses of 50 mg. once a month are continued for sixty months. This period was decided upon because rheumatoid arthritis is not considered cured until it has been inactive for five years. Because of the reversibility of the disease, treatment has been shortened to two or three weeks in some cases and the dose increased to 100 mg. in large men. Children have not been treated but should receive smaller doses. The patient is questioned weekly during treatment for any untoward symptoms; the blood pressure taken; mouth, throat and skin inspected; and routine urinalysis done. A complete monthly examination is also made with urinalysis and a hemogram. Evidence of toxicity rarely develops with above dosage but treatment is temporarily stopped if any appears. Absolute contraindications to gold therapy are history of purpura, agranulocytosis, renal or hepatic disease, pregnancy, hemophilia, severe diabetes mellitus, colitis, severe anemia, any hemorrhagic tendency, severe eczema or chronic dermatitis, severe bronchial asthma or any serious systemic disease except rheumatoid arthritis or psoriasis. Most frequent complications are various dermatitides with extreme itching, stomatitis, albumin or red blood cells in the urine, nausea and epigastric distress. Additional joint pains, swelling and stiffness sometimes appear for twenty-four hours after an injection. Improvement sometimes does not occur before the end of the weekly injections but the pain usually decreases and swelling begins to subside after the seventh or eighth treatment.

Summarizing, gold therapy seems indicated in cases of progressive rheumatoid arthritis unrelieved by a reasonable period of safer and older treatment, when the patient clearly understands and accepts the risk, and when the treatment may be given with necessary clinical and laboratory safeguards. 11 references. 1 table.

Rheumatoid Arthritis. 475 Cases Treated with 721 Courses of Gold. *Abraham Cohen, Philadelphia, Alfred W. Dubbs, Allentown and Joel Goldman, Lewistown, Pa.* Pennsylvania M. J. 52:35-38, October 1948.

The authors report on 475 cases of rheumatoid arthritis treated with 721 courses of gold. Important among the factors contributing toward the safety of gold therapy is the trend toward lowered dosage. The maximum dosage is 50 mg. in a few cases while the usual maximum is 25 mg.; the total dosage should not exceed 790 mg. in one course. In the total number of cases treated, the authors consider that there was 68.3 per cent improvement both subjective and objective. Toxic reactions may be due to true sensitivity to gold or to a pharmaco-toxicologic reaction in which there is a certain tolerance, which when exceeded results in toxic reaction. Several factors have combined to make toxic reactions less hazardous. If the clinician, less experienced in the field, will observe the well established routine precautions against gold intoxication, and if he has available BAL he may use gold salts in rheumatoid arthritis with relative impunity. Toxic reactions were observed in 15 per cent of the 721 courses and 21 per cent of the patients. The authors further stress the importance of treating each case of rheumatoid arthritis as an internal medical problem, the use of supportive therapy including blood transfusions, and the use of physostigmine salicylate- atropine sulfate combination in the prevention of deformities. 8 references. 3 tables.—*Author's abstract.*

Phthalyl Sulfacetimide in Ulcerative Colitis. *Theodore S. Heineken, Mountainside Hospital, Montclair, and Harry Seneca, Schering International Research Institute, Bloomfield, N. J.* Rev. Gastroenterol. 15:611-18, August 1948.

Treatment of ulcerative colitis is directed against secondary infection of the ulcers because the cause is unknown. Phthalyl sulfacetimide was found to produce a decided reduction in the intestinal bacterial flora. As the drug was practically nontoxic, it was therefore tried in chronic ulcerative colitis in the hope that a total reduction in the intestinal bacterial count might be beneficial. Phthalyl sulfacetimide was administered to 28 patients with mild to severe ulcerative colitis which had resisted other treatments. It was given in courses of 3 Gm. three times daily for five days and then repeated as often as necessary. Paregoric and bismuth subnitrate were given in a few cases when diarrhea was increased by the treatment. The dose was decreased to 1 or 2 Gm. three times a day and continued for two or three weeks in a few cases who could not take large doses because of nausea and distention. Vitamins, liver extract and warm oil enemas were also given. Improvement occurred in 18 cases. Stools returned to normal, pain disappeared, intestinal gas was reduced and roentgen and sigmoidoscopic findings became normal in 65 per cent of cases.

Sodium phthalyl sulfacetimide is chemically disodium N^1- acetyl- N^4- phthalyl sulfanilamide dihydrate. It is readily absorbed by and into the wall of the intestinal tract without producing detectable blood levels or toxic side-effects. It is markedly bactericidal, the intestinal flora being reduced from

70 billion to 26,000 after oral administration of 18 Gm. in man. Ulcerative colitis has been classified by some as a psychoneurosis or functional disturbance and encouragement is essential in its treatment. Psychotherapy can only be an accessory to medical treatment to inhibit secondary infection of ulcers, giving them an opportunity to heal. This is followed by improved nutrition and steady, marked improvement. *(Phthalyl sulfacetimide is manufactured commercially as Thalamyd by the Schering Corp., Bloomfield, N. J.)* 14 references. 3 figures.

The Amount of Digitoxin (Digitaline Nativelle) Required for Adequate Digitalization. *Harold J. Stewart and Abbott A. Newman, New York Hospital and Cornell University Medical College, New York, N. Y.* Am. Heart J. 36:641-67, November 1948.

Digitalis glycosides have been substituted for the whole leaf in the treatment of circulatory diseases but questions concerning what constitutes adequate digitalization have remained unanswered. Studies of 12 patients with auricular fibrillation who were given digitoxin showed that an average of 2.06 mg. of digitoxin was required to produce full adequate therapeutic digitalization. A dose of 1.2 mg. was adequate in only 1 case of this group. These studies showed that sufficient amounts of digitoxin slowed the ventricular rate as effectively as the whole leaf but larger amounts were needed than anticipated, while nausea and vomiting occurred more frequently than with the whole leaf. It was found that a dose of 1.2 mg. of digitoxin was usually inadequate to produce digitalization whether given in 1 dose or divided doses during twenty-four hours. Certain patients were given a single dose of 1.2 or 1.8 mg. and followed by enough additional drug to produce the desired slowing. The average total amount required was 2.1 mg. The large single doses given patients in this series are not recommended for general use. If a bed patient is to be digitalized with digitoxin in twenty-four hours, the recommended dosage is 0.8 mg. followed by 0.5 mg. four hours later, 0.3 mg. after four more hours, 0.2 mg. four hours later and 0.2 mg. after another four hours. The drug is stopped at any time after the first dose that the pulse rate slows to 75 per minute or if nausea or vomiting occurs. Maintenance amounts of digitoxin varied from 0.1 mg. every two days to 0.2 mg. every day, most cases being in between and alternating 0.1 and 0.2 mg. daily, 0.2 mg. daily being too much for digitalized patients. It is believed that this same amount should be used in cases of normal sinus rhythm when the heart rate is not a guide to digitalization. It was found more difficult to keep patients in equilibrium with digitoxin than with the whole leaf. It appears that, as with the whole leaf, more digitoxin is required to slow the ventricular rate in hyperthyroidism with auricular fibrillation than in patients having normal basal metabolic rates. It is considered that insistence in the literature upon 1.2 mg. as being the full therapeutic dose of digitoxin has misled many physicians into believing their patients had received adequate amounts of digitalis whereas they had not. Furthermore, insistence upon a

daily maintenance dose of 0.2 mg. is dangerous as toxic effects are being observed after some months of this dosage. 16 references. 1 table. 13 figures.

Bronchiectasis. *Alvan L. Barach, New York, N. Y.* Am. Pract. 3:89-94, October 1948.

This paper deals with the medical treatment of bronchiectasis for patients who are not suitable for lobectomy. The most significant advance in the treatment of bronchiectasis from a medical point of view has been the development of penicillin, especially its use by inhalation. Although favorable results have been observed following its administration intramuscularly, the improvement resulting from penicillin aerosol has been in many cases of far more marked extent. The abundant growth of bacteria on a bronchial surface lined with purulent exudate, that may not be reached by lymphatic or capillary blood supply, is combated more successfully by topical application with a mist of penicillin, which not only achieves a therapeutic blood level but also a high sputum level is not obtained by systemic administration of the drug. Furthermore, the inhalational route of administration is feasible for patients who may be required to take this treatment over a period of weeks, months, and at times for years.

The dosage administered to accomplish elimination of gram-positive bacteria from the expectoration is in most instances 400,000 to 600,000 units daily, administered in a concentration of 50,000 units to 100,000 units per cc. of normal saline or, preferably in most instances, in 1 per cent neosynephrine, in divided doses either two or four times daily. Following inhalation of penicillin aerosol the sputum cultures generally reveal gram-negative organisms such as Bacillus coli, B. aerogenes, B. pyocyaneus and B. proteus but in the experience of the author these organisms have not been showed to exert a pathogenic effect. The presence of Friedländer bacilli or B. coli prior to treatment requires the additional administration of streptomycin by aerosol for a limited period, such as two weeks, in a dosage of 1 Gm. per day. The simplest method of administration involves the employment of a fine particle-size nebulizer. Nebulization of the solution is produced either by oxygen of a high-pressure cylinder, a motor pump, an automobile foot pump, or, in a few patients who are able to nebulize concentrated solutions without fatigue, by a hand bulb.

The clinical results include, in favorable cases, marked diminution or disappearance of cough and expectoration and improvement in well-being, with gain in weight and energy. Although recurrence of infection takes place frequently in chronic advanced cases, a maintenance dose of 200,000 to 300,000 units of penicillin in most cases results in sustained improvement. The development of resistance is rare among adults who have taken penicillin over a period of years. The only organism in which increased resistance has been found has been the Staphylococcus aureus and this type of resistance can be overcome by increasing the dosage of penicillin to between 600,000 and 1,000,000 units of penicillin by aerosol for a period of one week to ten days. Inhalation of micronized or finely ground crystalline penicillin as a dry powder is less effective and more wasteful than properly employed aerosol therapy. 23 references.—*Author's abstract.*

The Clinical Use of a Triple Sulfonamide Mixture. *John H. Ledbetter, Nashville General Hospital, Nashville, Tenn. and George E. Cronheim, Research Department of the S. E. Massengill Co., Bristol, Tenn.* Am. J. M. Sc. 216:27-31, July 1948.

The chief danger of sulfonamide therapy has been kidney damage from precipitation of the free or conjugated drug. This is avoided by multiple sulfonamide therapy. The three most commonly used drugs are sulfathiazole, sulfadiazine and sulfamerazine. These have similar antibacterial activity and are therefore interchangeable in most cases needing sulfonamide therapy. It is reported that this combination has been successfully used in many hundreds of cases of acute pneumonia in Sweden without any known cases of renal calculi. The chief interest in multiple sulfonamide therapy has been the reduction of renal complications, especially crystalluria. This complication was reduced from 26 to 28 per cent of cases when a single sulfonamide was used to less than 3 per cent by using a mixture of these 3 sulfonamides without any alkalizing agent.

A triple combination of sulfadiazine 3.5 per cent, sulfamerazine 3 per cent and sulfathiazole 3.5 per cent by weight volume in an aromatized aqueous suspension base was administered to 28 unselected surgical patients requiring sulfonamide treatment. From 20 to 40 cc. was given initially, representing 2 to 4 Gm. of total sulfonamides followed by 10 cc. or 1 Gm. of total sulfonamides every four hours. The average blood concentration was 7.8 mg. free and 8.5 mg. of total sulfonamides. These figures represent expected values from known average blood levels of each of these sulfonamides and indicate that absorption of each is not interfered with by the other components.

Multiple sulfonamide mixtures are also better tolerated so that the total dose of sulfonamides may be so increased that higher blood levels are obtained. This is especially important in conditions like meningitis where the drug has to pass into the cerebrospinal fluid and in cases infected by sulfonamide resistant pathogenic organisms. Another advantage of multiple sulfonamide therapy is the low acetylation rate in both blood and urine. This apparently indicates that each sulfonamide is processed separately in accordance with its low individual concentration. This should make multiple sulfonamides more effective because only free sulfonamides have a bacteriostatic action. The rapidity of therapeutic response to the multiple sulfonamide mixture is emphasized. It was unnecessary to stop the treatment in any of these cases. 16 references. 2 tables. 2 figures.

Q Fever in Central and Northern California. *Edwin H. Lennette and Gordon Meiklejohn, California State Department of Public Health, Berkeley, Calif.* California Med. 69:197-99, September 1948.

Evidence is presented to show that Q-fever, which has previously been recognized in Southern California, is also widely distributed in the Central and Northern portions of the state. This has been established by the demonstration of large increases in complement fixing antibodies to Coxiella burneti in serums of patients recovering from febrile illnesses. Results of tests up to

June 8, 1948 indicate that more than 100 cases have occurred in these sections. The clinical picture has differed somewhat from that generally described in earlier reports in that true rigors, often repeated, have been common and that symptoms and signs of respiratory tract involvement have been infrequently observed. Furthermore it has been noted that many patients in the older age groups have run a prolonged febrile course, sometimes lasting a month or more. Hepatic enlargement and tenderness have been noted in severely ill patients. Thrombophlebitis has complicated the convalescence in three patients.

Treatment with penicillin and sulfonamides has been ineffective. Streptomycin has given equivocal results. A new antibiotic, aureomycin, is currently being tested and offers considerable promise. The disease has been found almost exclusively in males, particularly those in contact with livestock. In contrast to Southern California, where evidence has been adduced incriminating cow's milk as a source of human infection, most cases have been in individuals in contact with sheep and goats. Furthermore, complement fixation tests with animal serums have showed relatively few serologically positive cattle, while a high proportion of sheep and goats on ranches where cases have occurred have been found to possess antibodies. It is concluded that the present evidence indicates that the epidemiologic factors in the Northern and Southern regions of the state are quite different. 5 references. 2 tables.—*Author's abstract.*

Canicola Fever. A Case Report. *Alexander A. Doerner and Thomas Hernandez, U. S. Marine Hospital, New Orleans, La.* Mil. Surgeon 103:368-71, November 1948.

The authors report a case of Canicola fever, successfully treated, proved by a rising agglutination titer for Leptospira canicola during the course of the disease. The dog is the only proved vector for this disease, and the disease is transmitted by contact with urine from an infected animal, consequently isolation of such animals is important. The incubation period of the disease in man is thought to be one or two weeks, and the clinical picture generally resembles mild Weil's disease, caused by Leptospira icterohaemorrhagiae, a closely related organism. Three stages are described: the septicemic stage, with fever from 101 to 104 F., malaise, chills, anorexia, myalgia and conjunctival injection; the hepatic or icteric stage, starting on the fifth or sixth day, usually with a tender and at times palpable liver, evidences of diffuse hepatocellular damage and jaundice in half of the cases; and the nephritic stage, which is usually very mild, with albuminuria as the only sign. Less frequent manifestations include meningitic signs and symptoms, cardiac involvement and hemorrhagic phenomena. The duration of the disease is of variable length, and relapses occur. The commonest abnormal laboratory findings are leukocytosis with shift to the left, mild anemia, elevated serum bilirubin, albuminuria and spinal fluid pleocytosis. Diagnosis may be made by finding the etiologic spirochetes by darkfield study of the blood during the first week, or the urine after the first week, or sometimes the spinal fluid. Inoculation of these fluids into suitable culture media, guinea pigs or ham-

sters may also lead to the isolation of the organism. The most valuable test is the agglutination-lysis test of Schuffner, as false-positive titers are rare, and antibodies appear about the tenth to fourteenth day and remain elevated for two or three years. Penicillin, diet of the sort used in the treatment of infectious hepatitis and symptomatic measures are recommended. Canicola fever should be suspected in a patient who presents the following: (1) a disease of sudden onset associated with chills, fever, conjunctival injection, muscle pain and tenderness; (2) a palpable, tender liver; (3) albuminuria, anemia and leukocytosis; (4) jaundice (50 per cent); (5) history of exposure to a sick dog. 6 references.—*Author's abstract.*

A Fatal Case of Myelitis after Antirabic Vaccine. *L. Ansell (Major, R.A.M.C.).* Brit. M. J. 4571:338-40, Aug. 14, 1948.

A perfectly healthy soldier was bitten by a healthy puppy fourteen days before admission. A series of 12 antirabic injections was started two days after the accident and then stopped because the dog seemed still healthy. Upon admission, his temperature was 101 F., pulse 88 and respirations 18. He was somewhat drowsy and had several red areas near the sites of injection, a few rhonci in the chest and slightly enlarged axillary and inguinal lymph glands. Blood examination was negative for malaria. He became more toxic the next day with temperature 104.6 F. and 12,800 WBC per cubic centimeter. Hiccupping and vomiting commenced that night and urine was not passed. Paralysis of the legs developed the next day. Examination showed no abnormality of the cranial nerves. The paralysis extended with involvement of the lower abdominal muscles and threat of involving the respiratory muscles. He was cyanotic, dyspneic and hiccupped continually. Penicillin was given in 50,000 unit doses every four hours intramuscularly and the patient put in an iron lung. He became delirious and the paralysis involved the muscles of the shoulder and arms with later involvement of the muscles of deglutition. Death occurred four days after admission. Lumbar puncture within an hour after death showed clear cerebrospinal fluid. Diagnosis made from autopsy findings was acute disseminated myelitis extending into the brain stem. There was no evidence of rabies.

The incidence of neuroparalytic complications after use of antirabic vaccine is given as 0.012 per cent for cases treated with killed phenol vaccine and 0.017 per cent for all types of antirabic vaccine. Symptoms usually develop about two weeks (maximum of thirty-five days) after the first dose of antirabic vaccine. Any one of four conditions may develop. The most serious is an ascending Landry type paralysis. This has a mortality of about 30 per cent. A dorsolumbar transverse myelitis involving the legs, bladder and rectum is more common and has a mortality of about 5 per cent. A mononeuritis or multiple neuritis with cranial or peripheral nerve involvement, rarely the optic nerve, or a meningo-encephalomyelitis may occur. These accidents are theoretically explained as being caused by a virus, toxin or allergy. The evidence in this case indicates an acquired anaphylaxis as the cause. This case illustrates the necessity of administering antirabic treatment only when definitely indicated. Preliminary skin tests for sensitivity are

desirable, especially with a family or personal history of allergy. Use of antihistamine drugs is worthwhile if neuroparalytic complications have appeared when the patient is first seen. The usual precautions of providing adequate rest with avoidance of unnecessary exertion and alcohol during antirabic treatment should be followed. 12 references.

The Thymol Turbidity Test for Liver Dysfunction. *R. C. Dunn. (Surg., U.S.P.H.S.), U. S. Marine Hospital, Baltimore, Md.* Mil. Surgeon 102:173-76, March 1948.

A brief review of the literature concerning the thymol turbidity test and its efficiency compared to the cephalin-cholesterol flocculation test is given. Evidence is accumulating that a *p*H of 7.55 enhances the efficiency of the Maclagen technic when the test is used as a screening method. It has been the author's experience that in cases showing clinical evidence of hepatic damage the results (employing the original Maclagen test) of the two tests are about the same. Since the thymol turbidity test is much simpler to run and can be read in the photoelectric colorimeter, this test may prove to be of more practical value as a routine method of determining the presence of liver damage and of establishing the time when the patient can be advised that active damage has probably ceased. 6 references. 2 tables.—*Author's abstract.*

ALLERGY

An Evaluation of Hydryllin (Diphenhydramine and Aminophyllin) in the Symptomatic Treatment of Allergy. *Harry Markow, Samuel Bloom and Harry Leibowitz, Beth-El Hospital, Brooklyn, N. Y.* New York State J. Med. 48:2390-92, Nov. 1, 1948.

Hydryllin is a tablet combination of 100 mg. aminophyllin and 25 mg. diphenhydramine (Benadryl) base. This combination is theoretically beneficial in bronchial asthma because of the therapeutic effect of aminophyllin and the antihistaminic effect of Benadryl. Possible toxic reactions might also be avoided because the stimulating effect of aminophyllin would counteract the depressant action of Benadryl. Hydryllin was given 81 cases of allergy including 46 cases of bronchial asthma, dosage starting with 1 tablet at night and being increased to 6 tablets daily as indicated by the therapeutic or toxic effects. Some patients could not tolerate 1 tablet, others could take 3 to 6 tablets daily, and beneficial results were obtained in others by pushing the dose to 6 tablets daily and then reducing the maintenance dose to 1 tablet daily.

Definite relief was obtained in 52 per cent of 14 hay fever patients and slight or no relief in 48 per cent. One case became worse and developed severe headache. Good results were obtained in 62.5 per cent of 8 hay fever cases complicated by pollen asthma. Results were disappointing in 6 cases of perennial allergic rhinitis, though complicating perennial bronchial asthma was relieved in 2 cases. Better results were obtained in allergic bronchitis by administration of 50 mg. of Pyribenzamine three times daily. Definite improvement was obtained in 70 per cent of 81 cases of bronchial asthma and 52 per cent of 27 cases of hay fever. Results were poor in 8 cases of other types of allergy. Toxic reactions occurred in a total of 37 per cent of the 81 patients, 16 per cent being slight and ignored, 6 per cent being moderate and 15 per cent sufficiently severe to necessitate discontinuance of treatment. These results are apparently better than previous results with other antihistaminic drugs, 26 per cent with Pyribenzamine being the best previous figure reported. 14 references. 2 tables.

Clinical Observations with Thephorin. A New Antihistaminic Drug. *Louis Sternberg and James Gottesman, Beth Israel Hospital, New York, N. Y.* Ann. Allergy 6:569-71, Sept.-Oct. 1948.

Seventy-six adult patients with various allergic disorders were treated with Thephorin; the majority had hay fever or bronchial asthma. Most patients received 25 mg. Thephorin three times daily, but a few required 4 doses a day for adequate relief. Benefit was observed in the majority of cases. Side effects occurred in only 5 of the 76 patients, an overall incidence of only 6.6 per cent. Two patients received 75 mg. of Thephorin daily for three months with no evidence of toxic effect as demonstrated by urinalyses, hemograms and electrocardiograms. The almost complete absence of side effects appears to be an attractive feature of the new compound. In particular, it is not con-

ducive to drowsiness. It is concluded that Thephorin is a useful drug in the symptomatic treatment of allergic conditions. 5 references. 1 table. —*Author's abstract.*

Comparative Studies of Several Antihistaminic Drugs. *C. E. Arbesman, Buffalo, N. Y.* J. Allergy 19:178-83, May 1948.

The relative efficacy of Neoantergan, Pyribenzamine, Hydryllin, Neohetramine and Antistine was studied in 291 allergic patients. Pyribenzamine was the most effective of all the drugs studied in allergic rhinitis and relieved symptoms in 80 per cent of 133 patients. Hydryllin relieved 64 per cent of 48 patients with asthma and was the most effective of the drugs studied in bronchial asthma. All of these drugs are useful adjuncts in the palliative treatment of allergic manifestations. 5 references. 2 tables. 2 figures.—*Author's abstract.*

Stimulating Dose of Immunizing Agents. Bull. U. S. Army M. Dept. 8: 558, September 1948.

The question of whether to repeat the basic series or to merely give a stimulating dose frequently arises with previously vaccinated persons. The evidence indicates that a single stimulating dose is all that is necessary to give adequate antibody rise five or perhaps more years after the basic series or last stimulating dose of cholera, typhus, plague, Rocky Mountain spotted fever, typhoid-paratyphoid fever and others. At least four years is allowed to pass after the basic series or last stimulating dose before revaccination with the complete initial series is required for cholera, typhus, plague or Rocky Mountain spotted fever.

DERMATOLOGY

Cancer of the Skin. *James L. Hall, Vicksburg Hospital and Clinic, Vicksburg, Miss.* Mississippi Doctor 26:154-56, November 1948.

Cancer of the skin is quite prevalent but its location offers an excellent opportunity for early diagnosis. Irritation is probably the most common predisposing cause and seems to definitely influence or precipitate the development of malignancy. Cure depends upon early diagnosis and proper treatment. The prognosis is good for the correctly treated small lesion but much worse for cases of delayed, inadequate or improper treatment. The general practitioner is in an excellent position to make an early diagnosis as patients usually go to them first. Skin cancer usually develops on the exposed surfaces. A senile keratosis covered with a tenacious, dirty brown scale which bleeds on removal is definitely precancerous. Any increase in size of these or of moles is suspicious. Development of induration and ulceration in lesions of the lips usually indicates beginning malignancy. Many other skin lesions may resemble early cancer and can only be differentiated by biopsy. Complete elimination of the lesion at the first treatment is imperative for

the cure of skin cancer as recurrences are difficult to manage. No lesion even suspected of malignancy may be temporized with but must be promptly treated by somebody capable of making the correct diagnosis and giving proper treatment. The application of acids, caustics, antiseptics, etc., is most unfortunate as they may cause irreparable damage by increasing the rate of growth. Skin malignancies must be treated by surgical or electrosurgical excision, radiation or roentgenotherapy, no single treatment being suitable for all cases. It may be necessary to combine several methods for the same lesion. The location, size and type of tumor also influence the choice of treatment.

The Use of Brilliant Green in the Treatment of Chronic Ulcers of the Skin. *Arthur W. Feinberg, Maimonides Hospital, Brooklyn, N. Y.* New England J. Med. 239:613-15, Oct. 21, 1948.

The author reports on a series of over 20 cases of chronic ulcerations of the skin which were successfully treated with the resaniline dye, brilliant green. The dye, like gentian violet, crystal violet and methyl violet is a derivative of triphenylmethane and can be obtained in the form of a green powder which is readily soluble in water and alcohol. In all cases, the dye was used as a 2 per cent aqueous solution and was applied daily until healing was progressing well—generally about seven to ten days. It was then applied every other day until healing was complete.

Four case histories are reported in detail. Two of these cases were long-standing infested ulcerations, 1 a tropical ulcer of over three month's duration in a young girl, and the fourth that of a leg ulceration in a diabetic.

Brilliant green seems to offer many advantages in the treatment of chronic, indolent ulcers of the skin. It is bactericidal for many of the common pathogens, has a high stimulating effect on the growth of epithelium and granulation tissues and counteracts the malodorous discharge common to this type of case. It is completely nontoxic, does not irritate tissues and has the added advantage of being low in cost. 3 references. 7 figures.—*Author's abstract.*

Streptomycin in Dermatology. Its Value and Limitations. *Frank C. Coombs, Orlando Canizares, Harry Shatin and Carl Kaufman, Bellevue Hospital and the Veteran's Administration Hospital, Bronx, New York, N. Y.* New York State J. Med. 48:2024-28, Sept. 15, 1948.

Streptomycin does not seem to have as wide a field of usefulness as penicillin though it is bactericidally effective against some penicillin-resistant gram-negative organisms and some gram-postive organisms. Chancroid was treated by streptomycin 1 Gm. daily in divided doses every four hours intramuscularly until there was complete healing. This was facilitated by aspiration of any fluctuant bubo. This dosage was found sufficient but treatment should be continued at least seven days. Sulfonamides are preferable but streptomycin is valuable in cases not responding to them. Gonorrhea is not a dermatologic disease but is included. Seven cases which had not responded to penicillin or sulfonamides promptly responded to 0.5 Gm. of streptomycin every three hours for 6 doses. A single intramuscular injection of 0.3 Gm. or

more of streptomycin in saline cured 50 gonorrheal patients. An injection of 0.2 Gm. cured 90.7 per cent of 22 cases, and an injection of 0.1 Gm. cured 40 per cent of 5 cases. Erysipeloid was experimentally benefited by streptomycin but no clinical reports of its use in man have been received. Rapid response occurred in 63 cases of granuloma inguinale to doses of 4 Gm. daily in divided doses for five days. Healing began in forty-eight to seventy-two hours and was completed in one to two weeks. Four relapses occurred but 2 were cured by a second longer course.

Topical applications of streptomycin in aqueous solution containing 10,000 units per cubic centimeter gave very satisfactory results in eczematoid dermatitis of the external auditory canal caused by Pseudomonas aeruginosa. No improvement occurred in 1 case of lymphogranuloma venereum after streptomycin 2 Gm. daily for seven days. Definite improvement occurred in 1 case of perifolliculiitis capitis abscedens et suffodiens treated with 2 Gm. daily for twenty-four days combined with sulfadiazine and surgery. Another case treated with streptomycin alone was unimproved. Temporary improvement occurred for three weeks in 1 case of rhinoscleroma treated with 15 Gm. Syphilis is not improved. Streptomycin 1 to 2 Gm. daily has been found effective in most cases of draining tuberculous sinuses if given in divided doses every four to six hours for three or four months. Its value in other forms of cutaneous tuberculosis and tuberculous lymphadenitis has not yet been determined. One case of lupus vulgaris showed healing of ulcers and considerable involution of the infiltration after receiving 115 Gm. in one hundred and seventeen days. One case of tuberculosis verrucosa cutis was apparently completely healed by 1 Gm. daily for six weeks. No relapse appeared after two months. Tuberculosis miliaris disseminata faciei showed only slight temporary improvement after 100 Gm. in six months. Rapid, complete healing of the ulcer on the tongue followed treatment with 1 Gm. daily for one month. It is believed that better results in the treatment of lupus vulgaris and other varieties of cutaneous tuberculosis would be obtained by combining streptomycin with calciferol. Streptomycin has been extremely effective in tularemia in average doses of 1 Gm. daily for seven to fourteen days.

Three varieties of toxic cutaneous reactions occur with streptomycin. One is a polymorphus biotropic exanthema occurring before the tenth day and not necessitating stoppage of treatment. An exfoliative dermatitis appearing after weeks of streptomycin therapy requires discontinuance of the drug. A troublesome contact dermatitis often occurs, especially in nurses continually in contact with the drug for considerable periods. This requires frequent personnel rotation, wearing of rubber gloves or removal from further contact. 36 references.

GERIATRICS

The Psychosomatic Problems of the Aged. *L. Carl Sanders, Memphis, Tenn.* Am. Pract. 3:169-73, November 1948.

The complaints of the aged are too often taken for granted and their symptoms ascribed to degenerative changes. Since the majority of elderly people become economically dependent, their relatives and often their physicians fail to sense that many of their symptoms are due to social, economic and environmental changes and not primarily to physical debility. The emotional state which follows such changes may assume various patterns, chiefly the result of fear, anxiety, or frustration. The reactions of the aged to these changes are manifested in one of two ways: First, those who accept age as a natural course of events. These people have lived a full life. They have met their responsibilities, made their sacrifices, disciplined their emotions and have kept their faith. They learned the value of recreation and play. They took from life the measure of happiness and contentment in proportion to what they invested into living. They prepared for old age gradually and learned that their mature judgment fitted them to be useful even in their declining years. Psychosomatic problems to them were the same as the physical problems and were met and handled in the same manner. Those in group II react to these changes in an entirely different manner. They have suffered from conflict all their lives, rarely are able to make decisions, are never certain of what they want and drift from one problem to another without having solved the first one. They are dependent upon others for guidance and when frustrated usually have a nervous breakdown. It is this group which comprises the majority of the psychosomatic problems. Functional disease should include only those patients whose symptoms and findings after a careful study cannot be proved as being due to organic disease. The clinical history is by far the best lead to the diagnosis. This history must be painstaking and often obtained only by interviewing members of the patient's family. The clinical examination must be thorough to rule out any organic disease.

The treatment of the psychosomatic problems of the aged should include: First, a definite assurance that the patient has no organic disease. This allays fears and instills hope and without it little can be accomplished. Second, a frank discussion with the patient of all the problems concerned in the production of the psychosomatic problem. If the patient can be made to see the reason for the symptoms the approach to treatment becomes clear. The psychic causes should be removed when possible. The patient must be assured that adjustments in thinking and in living are necessary. Useful work or recreation must be insisted upon when the patient's physical condition permits. Depressive thought can be dissipated only by pleasant thinking and useful employment. Since many of these people have assumed that their days of usefulness are gone, their hope for improvement lies in their ability to adjust themselves to changed surroundings by using their talents and mature experience in continuing to do useful things. The psychotherapy should be in simple, understandable language, firmly but sympathetically given at re-

peated intervals close enough to maintain contacts and assure the carrying out of suggestions previously made. Later consultations should be short and concise, because time does not permit prolonged discussions, and as a rule, the shorter the conference the better the results.

Medicinal treatment may be used when indicated. Nutritious food to build up strength, vitamins when necessary and iron in deficiency anemias should be prescribed. Sedatives in small doses to promote relaxation and induce sleep may be used at first. Extreme care should be exercised in prolonging the sedation, as the therapy is primarily psychosomatic and patients should learn to be dependant upon themselves rather than on the effect of drugs. Few psychosomatic problems of the aged are easily solved. It must be understood that age is not the end of usefulness. Many of our great men and women did their finest work after 60. Their success was due to the fact that they recognized age and experience as assets and not as liabilities. This fact teaches us that many psychosomatic problems can be prevented by allowing elderly people useful employment. Also, the aged should not be separated from their old friends and surroundings except in the case of dire necessity. They are more content to live amidst their personal belongings than to move to a busy household of a relative where there is little privacy. Physicians must be able to understand the mind of the aging patient and present an optimistic attitude in treatment. If the problems of the aged are handled with the same zeal and thoroughness as are the problems of disease in the young, the reward may be a happy conclusion to many psychosomatic conditions which the passing of time have forced upon a large number of unhappy elderly people.—*Author's abstract.*

PSYCHIATRY

Gynaecological Psychiatry. A Preliminary Report of an Experimental Clinic. *Linton Snaith and Brenda Ridley, Newcastle-upon-Tyne General Hospital, Newcastle-upon-Tyne, England.* Brit. M. J. 4573:418-21, Aug. 28, 1948.

Though the help of the psychiatrist is now acceptable even by conservative gynecologists, the separate clinic has the disadvantage that the patient is taken out of the environment to which she has turned for help and treated purely on psychologic grounds. To avoid this segregation, psychiatric sessions were started within the Gynaecological Department of the Newcastle General Hospital. In this summary of the results of two years work in such a clinic an attempt has been made to assess the relative importance of various factors in the etiology of psychoneurotic disturbances and to correlate them with the somatic symptoms presented. Two tables are quoted to illustrate this relationship. Forty-six per cent of the patients were considered to have unstable constitutions, with family and personal proneness to psychosomatic disorders, and lowered resistance to environmental stress and to the hardship of present day conditions.

Faulty personal relationship to husbands and relatives were commonly

found. Unconscious hostility to the husband often originated in insecure childhood, the patient identifying herself with her ill-used mother. In such patients frigidity and dyspareunia were usual symptoms and seemed to represent a means of punishment for the husband towards whom there was unconscious resentment. In other cases such symptoms were a subconscious means of overcoming a fear of pregnancy, engendered by housing difficulties, or by resistance to the implications of motherhood in emotionally immature women. In few cases was a satisfactory method of contraception employed, coitus interruptus being usual. A psychologic inhibition of orgasm was demonstrable in many such patients, who expressed the belief that conception was only possible when orgasm occurred. Abdominal pain was one of the most difficult symptoms to eradicate. Some cases simulated endometriosis, others took the form of dysmenorrhea or middle pain. Where laparotomy proved justifiable, it was possible to demonstrate the absence of gross organic disease. It has been suggested that many functional disorders of the genital tract are due to a psychologic rejection of the implications of maturity, dysmenorrhea representing an unwillingness to leave the phase of adolescence, while menorrhagia in the mature woman represents an excuse for seeking the haven of the menopause. Sometimes minor measures such as cautery of cervix, or even mere reassurance, were all that was required for eradication of symptoms but in other cases hysterectomy was ultimately necessary in order to restore the woman to a condition when she could tackle the burden of life in a reasonably fit state of body and mind. Emotional immaturity was present in many of these patients, the neurotic symptoms being an attempt at escape from the realities of adult life. Common symptoms in such women were frigidity, dyspareunia, leukorrhea and infertility; the latter group often displayed an unconscious resistance to motherhood. Unsatisfactory housing conditions were of considerable importance, causing lack of privacy, leading to friction with relatives and to revulsion from coitus due to fear of being overheard, or to dread of another child under overcrowded conditions. Inadequate social outlets were also noted, some women never having been out with their husbands since the birth of the first child, with resulting marital estrangement. Financial difficulties were of negligible importance.

Psychotherapy was attempted in 84 cases, an average of seven interviews per patient being given. Treatment was mostly confined to explanation, reassurance and reeducation. Reference to a contraceptive advice clinic and the free use of the services of the Almoner in social problems proved invaluable. In infertility cases, investigation of the husband was of assistance: if he was found infertile, the patient lost her feeling of inferiority. She was reassured by his cooperation and he was brought to realize the part he had to play in the patient's disability. Additional physical therapy was needed in many cases, such as hymenotomy in dyspareunia, or where there was an organic lesion which only played a minor part in the symptom complex. It was considered justifiable often to carry out hysterectomy rather than tubal ligation where fear of pregnancy was a significant factor and contraception had failed, as the unstable personality was still present and there was risk of

a later complication such as menorrhagia, if the uterus remained, when the phase of menopausal cancerphobia was reached.

All kinds of gynecologic disorders have been attributed to psychologic causes: the gynecologist would be the ideal person to treat such cases but he usually lacks the experience and the time. It is therefore suggested that a psychiatrist and a social worker are necessary parts of the gynecologic team. The part played by faulty upbringing suggests the need for premarital advice and better sex education. Advice on contraception is often lacking or is ill-advised and given without regard to the personal prejudices of the couple concerned. The importance of overcrowding and ill-assorted family relationships in producing these functional disorders suggests the need for placing such patients on the priority lists for new houses. Finally, it is pointed out that in dealing with psychosomatic disturbances of gynecologic type, a compromise is often needed, the psychiatrist being prepared to abandon his treatment when the surgeon can offer more rapid and permanent relief by radical measures. In his turn the latter must be prepared to withhold his knife and even his hormones when the psychiatrist advises that the result of such therapy may be psychologically unsound, and must also be willing to operate even in the absence of demonstrable organic disease when his colleague can be reasonably sure that only radical surgery will finally cure the patient of her anxiety. 7 references. 2 tables.—*Author's abstract.*

Labile Diabetes. Electroencephalographic Status and Effect of Anticonvulsive Therapy. *Maximilian Fabrykant and Bernard L. Pacella, New York Post-Graduate Medical School and Hospital, New York, N. Y.* Ann. Int. Med. 29:860-77, November 1948.

Labile diabetes includes those diabetics who, regardless of age and duration of the disease, show a very narrow time margin between exceedingly high and critically low blood sugar values. They therefore show rapid changes from hypoglycemia and aglycosuria to profound glycosuria and acidosis. A rapid fall in blood sugar is produced in these cases by small doses of insulin but acidosis may suddenly develop if no additional insulin is given. Studies of a group of 7 labile diabetics with no history of epilepsy or previous convulsive seizures were made. Blood sugar and sugar content of urine were determined in both casual and twenty-four hour specimens at least once a month. Blood sugar determinations were also made during hypoglycemic symptoms or when oncoming reactions were felt, sometimes after a one or two hour interval. Electroencephalograms were made by the three-channel Gross instrument and effect of anticonvulsants studied in 3 cases, periods of five to thirty-three days without anticonvulsant treatment being used as controls.

A normal encephalogram was obtained in 1 patient and abnormal or borderline in the remainder. Abnormal electroencephalograms were found not to result from insulin received but probably from the diabetic condition. It was found that reactions usually developing in insulin hypoglycemia might occur in labile diabetes with exceptionally high blood sugar readings. Carbohydrate treatment did not improve these reactions but they were aided by anticonvulsant therapy. Tridione, Dilantin and Mesantoin were used in

an effort to control the cerebral dysfunction. Tridione was given 2 patients but discontinued after five to eight days because of increased reactions. Dilantin was given in doses of 3 to 5 capsules daily to 3 patients and Mesantoin in doses of 2 or 3 tablets daily to 2 patients. The drugs were given for ten days with rest periods of five to seven days. An excellent response was obtained in 2 cases and less favorable but definite in a third case. The number of reactions over a six month period dropped from forty-eight to twenty-five in 1 case, there repeatedly being no attack for over three weeks. The onset of reactions became smoother and more gradual. Additional excessively high carbohydrate feedings and consequent hyperglycemia and glycosuria were eliminated. The insulin dosage could be increased in the initial treatment period without risk of reaction but the insulin dosage could be decreased as soon as the blood sugar level was lowered because additional amounts were not required for unexpected attacks of glycosuria. A remarkable psychologic improvement occurred in all 3 patients and the EEG returned to normal in 2 cases. Encephalographic studies are important in labile diabetes because recognition of cerebral dysfunction may help to differentiate the two types of reactions and patients may be treated accordingly. This series of cases was small and the studies only a little over a year but appreciably satisfactory results were obtained, indicating that anticonvulsants are a valuable additional method of treating labile diabetes. 24 references. 4 tables. 2 figures.

Hypnosis as an Expedient in Obstetrical Analgesia. *William E. Powles, Montreal General Hospital, Montreal, Que., Canada.* Canad. M.A.J. 59:271-72, September 1948.

The case is reported of an elderly primipara Indian who was delivered successfully under hypnosis at an isolated hospital, having refused the available inhalation agents. The method used was vocal suggestion of relaxation, sleep and nonspecific analgesia, which proved completely adequate, despite a moderate language difficulty, for indifference to manipulations, forceps traction, episiotomy and delivery; and total amnesia. Heroin grain 1/12 had been given two and one-half hours before delivery. The use of hypnotic analgesia in surgery, obstetrics and dentistry since mid-nineteenth century is briefly reviewed; this technic appears to be the closest approach to date to the ideal obstetric analgesic, its limitations lying in technical preparation and personal applicability and the results and indications of several recent authors are convincing. 12 references.—*Author's abstract.*

PEDIATRICS

Intravenous Ethyl Alcohol in the Treatment of Status Asthmaticus in Children. *H. L. Bacal and S. Pedvis, Children's Memorial Hospital, Montreal, Que., Canada.* Canad. M. A. J. 59:410-12, November 1948.

The successful treatment of three children with status asthmaticus not responding to the usual drugs is presented with a discussion of the rationale of treatment. The material used is prepared by adding 50 cc. of 95 per cent ethyl alcohol to 1,000 cc. of 5 per cent glucose in saline. The action of this solution consists of: sedation, vasodilatation, bronchodilatation, respiratory stimulation, rapid metabolism and easily available calories. The cough reflex is stimulated and this helps to expectorate mucus. Fluid, electrolyte and sugar needs are also met. The advantages are: a nontoxic and nonallergenic solution without the undesirable side reactions of adrenalin, ephedrine, aminophyllin and the usual sedatives. It is effective in cases where these drugs have failed. After twenty-four hours, not only is the patient clinically improved, but the chest is usually clear to auscultation. Method of administration: 40 cc. per kilogram of body weight of a 5 per cent solution of ethyl alcohol in 5 per cent glucose and saline is used; 80 to 100 cc. is given intravenously in the first ten minutes, i.e., at a rate of 120 to 150 drops a minute. The remainder is given at the rate of 2 drops per kilogram per minute. 11 references.—*Author's abstract.*

Fatal Staphylococcal Enteritis Developing During Streptomycin Therapy by Mouth. *Ivor R. H. Kramer, St. Mary's Hospital, London, England.* Lancet 17:646-47, Oct. 23, 1948.

A 6 weeks old female infant was admitted to hospital with gastroenteritis. Repeated examination of the stools failed to show any Staphylococcus aureus or organisms of the Salmonella or Shigella groups, but Proteus vulgaris was always present. Initial response to dietetic treatment was not maintained and there was a severe relapse on the third day after admission. This was treated with oral streptomycin, 0.5 Gm. in the first twenty-four hours, then 0.25 Gm. in each subsequent twenty-four hours, by mouth in divided doses. Response to this therapy was good but on the seventh day after admission there was a sudden collapse and the infant died within half an hour.

Postmortem failed to show the cause of death but cultures from the terminal ileum gave a heavy pure growth of a streptomycin resistant coagulase positive Staphylococcus aureus. It is suggested that the organism was derived from a Staphylococcus aureus conjunctivitis that developed on the day before streptomycin was started and that the small amount of the drug reaching the blood stream from the intestine was responsible for the strain becoming resistant. It is also suggested that the elimination of the normal intestinal flora with oral streptomycin may have contributed to the establishment of the Staphylococcus there. 6 references.—*Author's abstract.*

Treatment of Infantile Diarrhea with Streptomycin and an Oral Amigen Mixture. *Elvira Goettsch, George Cobley, and Mary Mulloy, Los Angeles, Calif.* Pediatrics 2:1-20, July 1948.

Many years ago to avoid prolonged starvation in diarrhea, a suitable oral preparation of amigen was fed early in the course to cover the electrolyte and metabolic deficiencies. The original oral amigen mixture was designed to simulate the composition of skim milk, with additional sodium chloride; later the mineral content was reduced. The present mixture contains 33 per cent dry powdered amigen, 62 per cent glucose, and 5 per cent added salts; when fed in 10 per cent solution, the mixture is acceptable to young infants, is fat-free, simulates the protein and sugar content of milk and contains about half the concentration of calcium, potassium and phosphorus found in milk, with somewhat higher sodium and chloride levels. A practical advantage to the use of early oral amigen is the elimination of prolonged intravenous administration and safe administration of potassium.

In 1945, during a severe epidemic of diarrhea, the treatment consisted of the customary parenteral replacement of fluids, sulfonamides, penicillin and early oral amigen. A survey of 101 infants revealed a morbidity of 40 per cent, with an uncorrected mortality of 20 per cent; the corrected death rate was 7 per cent. Of particular interest was the predominance of gram-negative organisms of the colon group in cultures obtained from the naso-pharynx, aural and catheterized urines of infants with protracted diarrhea. Later, critically ill infants received streptomycin as soon as the cultures identified gram-negative organisms; more recently streptomycin was given on admission to seriously ill infants. The dose for larger infants was 1 Gm. of streptomycin daily in divided doses every three hours, 0.5 Gm. intramuscularly and 0.5 Gm. orally; for small infants half this dosage sufficed. Forty-four infants with parenteral diarrhea received streptomycin with 3 deaths, an uncorrected mortality of 7 per cent and a corrected mortality of zero; no deaths were encountered which could be attributed to diarrhea. The use of streptomycin and the oral amigen mixture as an adjunct to the customary routine employed in previous years, effectively shortened the hospital stay, decreased the amount of intravenous therapy and reduced the mortality. 60 references. 4 tables. 5 charts.

Observations on Tuberculous Meningitis in Childhood. With Special Reference to Early Diagnosis. *W. S. Craig, University of Leeds, Leeds, England.* Brit. M. J. 4572:374-78, Aug. 21, 1948.

Interest in the subject of tuberculosis in childhood and of tuberculous meningitis in particular has received added stimulus from trials being given to streptomycin therapy. It is customary to describe the clinical course of tuberculous meningitis in terms of three stages. Each stage is associated with a salutary warning. The clinical picture in the third and terminal stage is predominantly one of intracranial disease and sight is apt to be lost of the fact that meningeal infection is secondary to infection elsewhere. The clinical picture in the second stage is sufficiently typical to suggest a correct diagnosis but it is not dependent for its characteristics on findings associated with

other forms of meningitis in childhood. The symptoms which go to make the clinical picture of the first or prodromal stage have four more or less constant characteristics: (1) vagueness; (2) insidiousness; (3) a slow progressiveness; (4) a certain ominous persistence when reviewed over a period of time. Diagnosis during the prodromal period presents a baffling problem and must often remain tentative. The first need is to consider whether active tuberculous infection is present rather than whether there is or is not tuberculous meningitis. Especial care is required in obtaining a history; and in interpreting information whether volunteered or given in response to direct questions. Isolated vomiting is almost always the first symptom although its significance is not usually immediately appreciated. Fitful temperamentalism in association with tiredness is an important and early feature in most cases. There is no typical physical appearance. Many cases show an early and pronounced dryness of the skin of the trunk or inner aspects of the thighs.

Suspicion of tuberculous infection calls for immediate radiographic examination and tuberculin skin tests. The multiple puncture test *(Brit. M. J., Feb. 4, 1933)*, is the method of choice in family practice. Greater use should be made of tuberculin skin tests by the family doctor. In the early stage of tuberculous meningitis lumbar puncture may give valuable although inconclusive information. In such circumstances findings have to be evaluated in relation to clinical observations. Diagnosis must have regard to a history of contact with an infected person at a material time; and to a history of debilitating conditions which have followed in rapid succession or which have been of pronounced severity. Tuberculous meningitis is rare under 6 months; it occurs with greatest frequency in the second and third years of life; and tends to run a more rapid course in infancy than in older childhood. The infant with early tuberculous meningitis tends to be quiet rather than noisy. Minor changes of the condition of the fontanelle are of significance in infancy. Regardless of age, bizarre symptoms lacking other explanation should always raise the question of tuberculous meningitis. 2 tables.—*Author's abstract.*

Exchange Transfusion in Haemolytic Disease of the Newborn. *P. L. Mollison and M. Cutbush, Postgraduate Medical School of London, London, England.* Lancet 2:522-27, Oct. 2, 1948.

There are three grounds upon which exchange transfusion might be advocated for the treatment of cases of hemolytic disease of the newborn: (1) to raise the hemoglobin level rapidly without increasing the blood volume. This might be of value in infants severely anemic at birth since such infants have a raised venous pressure and their death within twenty-four hours of birth may be attributable to cardiac failure; (2) to reduce to a minimum the amount of breakdown of Rh-positive cells during the critical first 4 days of life, since it is possible that the blood destruction in this phase is indirectly responsible for the tissue damage (kernicterus); (3) to provide the infant with such a concentration of Rh-negative cells by a single operation that no further transfusions will be needed. It is difficult to compare the value of different methods of treating hemolytic disease because the disease varies so

greatly in severity. In the past it has been impossible to judge whether two published series contain similar numbers of severe cases. The authors suggest that estimations of hemoglobin and bilirubin in the cord blood of an affected infant allow one to assess the severity of a case. Although anemia can be readily diagnosed by examining cord blood, it is far more difficult to interpret hemoglobin estimations made a few hours after birth, because initial anemia may be masked by the transfer of varying amounts of placental blood at the moment of birth.

Cases requiring treatment were selected from 63 Rh-positive infants born to Rh-negative women whose serums contained Rh-antibody. Hemoglobin values were below the normal range in more than half the affected infants. Those infants with a cord hemoglobin value above 15 g. per cent pursued a mild course and mortality was highest amongst the most anemic infants. The concentration of bilirubin in cord blood varied from less than 3 mg. in mild cases to 8.1 mg. per 100 cc. in severe cases. Free Rh-antibody was almost invariably present but was not well correlated with other findings. The degree of erythroblastemia varied greatly but was a constant feature in severely affected infants. The Coombs' test was invariably positive. The 30 infants selected for exchange transfusion were those whose cord blood had a hemoglobin value below 14.5 g. and/or a bilirubin value above 4 mg. per 100 cc. The transfusion was carried out within thirteen hours of birth in 23 cases, and between seventeen and thirty-eight hours after birth in the remaining cases. The technic used is based on that described by Diamond: a fine plastic catheter is passed up the umbilical vein until blood can be freely aspirated. Then, 20 cc. of blood are withdrawn and immediately replaced by 20 cc. of Rh-negative blood. By this procedure 350 to 450 cc. of blood can be removed and replaced by Rh-negative blood over a period of one to two hours. The percentage exchange effected in this way will depend on the infant's initial red cell count and the donor's red cell count, as well as on the total volume of blood exchanged. Thus, if the infant is anemic and the donor plethoric, it will be easier to secure a good percentage exchange of red cells.

It is important not only to secure a good percentage exchange of Rh-negative for Rh-positive cells but also to leave the infant with a high absolute concentration of Rh-negative cells to tide it over the subsequent period, which may extend to forty days or more, when it is unable to maintain a satisfactory concentration of Rh-positive cells. This objective is best achieved by the use of donor blood with a count of 5,000,000 to 6,000,000 per cu. mm. Among the 30 infants treated by exchange transfusion there were 7 deaths; only 1 of the 23 survivors showed signs of damage to the central nervous system. Although the ability of this treatment to lower mortality and morbidity remains unproved, the favorable clinical effects produced by exchange transfusion and the absence of any ill effects from its use, suggest that such treatment can justifiably be advocated as the most convenient method available. 16 references. 1 table. 1 figure.—*Author's abstract.*

OBSTETRICS

A Method of Obstetric Analgesia and Anesthesia. *Lees M. Schadel, Jr., Hahnemann Medical College and Hospital, Philadelphia, Pa.* Am. J. Obst. & Gynec. 55:1016-22, June 1948.

The foundation for a safe painless delivery is an adequate psychologic approach to childbirth as a physiologic phenomenon. When uterine contractions elicit severe pains and examination reveals satisfactory progress of labor; 4 cm. cervical dilation, Demerol and scopolamine are given by hypodermic. (1 mg. per pound of body weight of Demerol, and 1/150 of a grain of scopolamine). The Demerol may be repeated if needed; but scopolamine, only with caution to insure a cooperative patient at delivery. At this time three nerves on each side are blocked with 1 per cent Intracaine solution to which 5 minims of 1:1,000 epinephrine have been added. A skin wheal is placed on each side of the perineal body, through which the 3 inch 20 gage needle is directed so that it is mesial to the left tuberosity of the ischium. After aspiration 10 cc. are injected along the pudenal nerve. Without removing the needle the syringe is disconnected and refilled, reconnected to the needle which is withdrawn almost to the tip and redirected to the inferior border of the symphysis. After aspiration the ilio-inguinal nerve is injected. The syringe is again filled and the needle directed toward but not into the sphincter ani muscle. Here, after aspiration, 10 cc. are deposited in the levator fascia to block the inferior hemorrhoidal and branches of the fourth sacral nerves. This procedure is repeated on the opposite (right) side. Within a few minutes episiotomy and delivery may be performed. This procedure is safe (no fetal mortality) simple and efficient; yet without any of the hazards of the more common types of anesthesia. The simplicity of the technic is apparent when an elementary knowledge of the anatomy of the perineum is acquired. It is effective (95 per cent satisfactory anesthesia) when these nerves are blocked, and it allows most minor procedures including outlet forceps delivery and repair. 4 references. 2 figures.—*Author's abstract.*

Evaluation of Molybdenized Ferrous Sulfate in the Treatment of Hypochromic Anemia of Pregnancy. *Ray F. Chesley and John F. Annitto, Jersey City, N. J.* Bull. Margaret Hague Maternity Hosp. 1:68-75, September 1948.

A medicinally potent form of iron is important for the prompt correction of decreased hemoglobin concentrations in pregnancy. Molybdenized ferrous sulfate has been reported as being therapeutically more efficient than the unmodified salt. Results of a comparative study of the therapeutic value of molybdenized ferrous sulfate in a series of 110 pregnant patients with similar degrees of hypochromic chronic anemia are reported. Only women having the disease during the first five months of pregnancy were considered. The diagnosis was based upon a minimum of three weekly hemoglobin estimations of 10 Gm. per 100 ml. or less and a mean corpuscular hemoglobin concentration of 30 per cent or less. Noncooperative patients and those having hemorrhagic, infectious or toxic complications, or premature delivery

were excluded. Patients were divided into three groups for treatment: group A (55) received molybdenized ferrous sulfate; group B (45) ferrous sulfate; group C (10) ferrous sulfate combined with either liver-stomach concentrate or folic acid. Approximately 230 mg. of elemental iron were supplied each group daily. Group C received either 2.6 Gm. of liver-stomach extract or 6.8 Gm. of folic acid in addition. Therapeutic response was calculated upon the rate of hemoglobin increase over a standard six week period before the last two months of pregnancy.

Results showed that a definitely more rapid therapeutic response occurred in the group receiving molybdenized ferrous sulfate than in the group given ferrous sulfate, 75 per cent of group A showing a mean hemoglobin increase of more than 2 Gm. as compared with 22 per cent of group B. The mean hemoglobin increase in group C was about the same as group B, only 30 per cent showing a gain of more than 2 Gm. This showed that addition of either liver-stomach extract or folic acid potentiated the action of ferrous sulfate. Early marked increases in hemoglobin to about 11 Gm. per cent occurred in some patients given ferrous sulfate. The hemoglobin then became stationary however and only resumed its increase after the treatment was changed to molybdenized ferrous sulfate. Gastroenteric disturbance frequently follow administration of therapeutically effective doses of iron preparations but none of the patients receiving molybdenized ferrous sulfate had more than mild digestive symptoms whereas it was necessary to stop treatment with ferrous sulfate in 8 per cent of cases because of severe digestive disturbances. 16 references. 3 tables. 3 figures.

Diethylstilbestrol in the Prevention and Treatment of Complications of Pregnancy. *O. Watkins Smith, Ph.D., Free Hospital for Women, Brookline, Mass.* Am. J. Obst. & Gynec. 56:821-34, November 1948.

This study constitutes a clinical evaluation of a concept concerning the action of diethylstilbestrol in human pregnancy which had evolved from experimental studies by G. V. Smith and the author. Through the cooperation of 117 practising obstetricians complete reports were obtained upon 632 pregnancies during which diethylstilbestrol had been administered. The majority of cases were treated for the indications and according to the dosage schedule recommended by Smith and Smith.

Definitive treatment for threatened abortion (219 cases):—Seventy-eight per cent of the patients treated for bleeding between the sixth and twenty-first weeks carried to twenty-eight weeks or longer and 72 per cent had living and well infants. The highest spontaneous cure rate reported in the literature is 50 per cent. Among the 172 threatened aborters who carried to 28 weeks or longer there was 1 fetal abnormality, an incidence of 0.6 per cent. *Prophylactically against abortion (272 cases):*—Eighty-three per cent carried to twenty-eight weeks or longer and 78 per cent had living and well infants. In the 127 cases who had had two to five consecutive abortions prior to the one in which stilbestrol was given, the fetal salvage was 81 per cent in the group with two previous abortion sequences, 87 per cent with three, 59 per cent with four, and 20 per cent with five, as against the spontaneous cure rate

established by Eastman of 62 per cent, 16.4 per cent, 2 per cent and 0.5 per cent, respectively. *Effect of variations in dosage:*—In the total 491 cases treated for abortion the incidence of abortion and of later pregnancy complications was higher when the dosage schedule was not followed than it was in the group as a whole, the poorest results being associated with too high dosages before the twentieth week and with discontinuation of therapy when the danger period had passed. *Prophylactically against later pregnancy complications (98 cases):*—In this smaller group it was, in many cases, impossible to evaluate the effect of stilbestrol therapy and the report on this phase of the study is preliminary. Considering the medical and past obstetric histories of 75 of them, however, the course and outcome on stilbestrol gave good indication that the incidence of accidents of later pregnancy had been reduced, their onset postponed and the fetal salvage increased.

Although Smith and Smith have not recommended stilbestrol as a definitive measure in later pregnancy, 24 patients were so treated with inconclusive results. The other 19 of the 632 cases were given stilbestrol on insufficient grounds and are omitted. 25 references. 7 tables. 1 figure.—*Author's abstract.*

Errors and Evils of Episiotomy. *Channing W. Barrett, Chicago, Ill.* Am. J. Surg. 76:284-85, September 1948.

Episiotomy is a more serious operation than cesarean section which has become popular because it saves time for the doctor, is spectacular and relieves the patient's fear. The term episiotomy indicates cutting the pubis or vulva structure outside the abdominal wall and the name is applied to this operation in an effort to make it appear a harmless procedure. An operator is always expected to know the structures which he cuts but this is not the case in an episiotomy as commonly performed in obstetrics. The pelvic floor lying between the child's head in the pelvis and delivery is actually the musculo-fascial lower abdominal wall of five fascial and three muscle layers. Episiotomy is theoretically completely outside the pelvic floor and such a cut would not enlarge the outlet. Actually, all eight layers of the lower abdominal wall are cut. Episiotomy then damages the pelvic floor beyond all rational repair and causes consequent decrease of 50 per cent or more in its efficiency. Resulting complications are inadequate support; extensive herniation; infection with fistulas and scar tissue formation; a frequently serious lack of grasp in sexual life; and bladder and urethral difficulties which are often serious. A deep oblique incision so paralyzes that side of the pelvic floor as to make it practically useless. Successful repair is more feasible after tears than after deep oblique incisions. The pelvic floor must be cut to enlarge the outlet as desired. Such an incision or operation is more properly a pelvic floor section. It can be accurately repaired by an experienced operator if a median incision is used which leaves the two halves of the floor alike but not otherwise. A plea is made not to carelessly use the name episiotomy for a procedure which does not at all correspond to that term.

GYNECOLOGY

The Application of a Silver Carbonate Stain for the Diagnosis of Uterine Cancer by the Vaginal Smear Method. *H. S. Yue, G. M. Riley, Ph.D., Norman F. Miller and K. Scharenberg, University of Michigan Hospital, Ann Arbor, Mich.* Am. J. Obst. & Gynec. 56:468-76, September 1948.

The diagnosis of uterine cancer by examination of the vaginal smear is facilitated by the use of a simplified silver carbonate staining technic. The vaginal smear is allowed to air dry and is then fixed in 10 per cent formalin for fifteen minutes. Immediate fixation of the smear also gives satisfactory results. The slide is rinsed thoroughly with distilled water and then stained with silver carbonate solution (to 25 cc., 10 per cent $AgNo_3$ add 75 cc., 5 per cent Na_2CO_3; add NH_4OH until solution clears; dilute with 275 cc. distilled H_2O). Reduce silver carbonate by placing slide in 1 per cent formalin for one to two minutes. Rinse with water and examine under microscope for staining quality. If more intense staining is desired, immerse slide again in silver solution for two to three seconds and repeat reduction in 1 per cent formalin. Dry slide, rinse in xylol and mount in clarite. This technic offers the following advantages: (1) chromatin elements are heavily impregnated with the stain; (2) cellular outline is sharply delineated; (3) immediate fixation is not necessary; (4) only one stain is required; (5) erythrocytes, which may obscure diagnostic elements, may be eliminated; (6) the procedure is both simple and rapid; (7) smear examination proves less fatiguing. 16 references. 9 figures.—*G. M. Riley.*

Uterine Cancer. Its Early Detection by Simple Screening Methods. *Daniel J. McSweeney and Donald G. McKay, Boston City Hospital and Boston University School of Medicine, Boston, Mass.* New England J. Med. 238:867-70, June 17, 1948.

The authors report the results at the Boston City Hospital of a year's work in a clinic for the early detection of cancer of the uterus with especial emphasis on the value of the vaginal smear as a screening procedure. The aspirated vaginal fluid was stained by the Papanicolaou technic and all positive smears corroborated by biopsy before treatment was instituted. In 639 cases 934 slides were examined and 357 biopsies were performed. The number of cases of carcinoma determined by biopsy was 54, including 43 cases of epidermoid carcinoma of the cervix, 2 of adenocarcinoma of the cervix and 9 of adenocarcinoma of the corpus uteri. The number of cases of carcinoma with positive smears was 51, an accuracy of 95 per cent. False-negative smears (negative smear, positive biopsy) were noted in 3 cases. Of 585 patients demonstrated not to have cancer a correct negative diagnosis was made in all except 12. These 12 cases constitute the false-positive group which was 2 per cent of the cases diagnosed negative by smear and 4 per cent of the 303 cases proved negative by biopsy. There were 42 cases of clinically obvious carcinoma, 6 cases of suspected carcinoma confirmed by biopsy and smear simultaneously and 6 cases of carcinoma unsuspected clinically, diagnosed

primarily by vaginal smear and subsequently confirmed by biopsy. A brief history of these 12 cases is included. 4 references. 4 figures.—*Author's abstract.*

An Evaluation of Adjunctive Radiotherapy in the Surgical Treatment of Endometrial Carcinoma. *Harold Speert and Thomas C. Peightal, Roosevelt Hospital, New York, N. Y.* Am. J. Obst. & Gynec. 56:502-508, September 1948.

Critical examination of the literature on the surgical treatment of carcinoma of the endometrium reveals the inadequacy of the published statistics to prove the superiority of hysterectomy combined with preoperative or postoperative irradiation over hysterectomy alone. A statistical analysis is presented of all cases of primary carcinoma of the endometrium treated surgically, that is, by total hysterectomy and bilateral salpingo-oophorectomy, from 1915 to 1942 at the Roosevelt Hospital, in order to ascertain the additional value of preoperative radium or postoperative roentgenotherapy. Of the entire group of 157 surgically treated patients 50 per cent survived five years, 27 per cent died within this period and 23 per cent were untraced. Patients with early lesions, as determined by degree of invasion of the uterus, had twice as high a five year survival rate as did those with advanced lesions. Similarly, tumors of low histologic grade of malignancy were associated with a better prognosis than were tumors of higher histologic grading. Preoperative irradiation with intra-uterine radium resulted in no apparent benefit when the patients were placed in groups of comparable clinical stage or histologic grade of tumor. Among the traced patients the best results were obtained by hysterectomy alone in the early cases (85 per cent five years survival) and in those with tumors of low histologic grade (91 per cent five year survival). Postoperative roentgenotherapy appeared to be of value in advanced cases and possibly in the treatment of tumors of high histologic grade. 15 references. 7 tables.—*Author's abstract.*

The Cervical Spoon an Aid to Spermigration and Semen Sampling. Preliminary Report. *Joseph B. Doyle, St. Elizabeth's Hospital, Boston, Mass.* Bull. New England M. Center 10:225-31, October 1948.

This is a preliminary report of a new method for maximum utilization of the migration potentiality of the semen. It is no longer necessary to sacrifice in the vagina large numbers of the available sperm. A concave lucite spoon has been devised to provide an innocuous inner lining of the posterior fornix and vaginal wall. It is inserted in the vaginal canal as the patient gently bears down. The cervix can be felt digitally as it dips into the spoon. The procedure is demonstrated in the office. At probable ovulation time as determined by calendar calculation, thermal shift, or cervical mucus study, the vagina is wiped dry and free from accumulated debris. A clean vaginal tampon is left in place to absorb the secretion until the patient is ready for coitus at home. Before coitus, the husband places the spoon beneath the cervix. Minimal coital movement will result in the deposition of the ejaculate into the spoon where it mingles freely with the cervical mucus. After at least one hour, the spoon is withdrawn by the husband as the wife gently

bears down to relax the perineum. The contents of the "spoon pool," are deposited in a clean boiled glass jar for study of viscosity, sperm count, morphology and viability.

Our studies reveal that the cervical mucus at ovulation time has a *p*H of from 7.0 to 7.5, by the nitrazine method. The *p*H of spoon semen samples varies, after one hour contact, from 6.5 to 7.5, virtually isotonic with cervical mucus. Motility and metabolism of the sperm are unaffected at *p*H 6.7 to 7.7 (Hotchkiss). Spoon semen samples collected after the spoon was left one to five hours in the vagina show 50 to 75 per cent of the sperm active. The spoon preserves the maximum population potentiality for cervical penetration, and also preserves the vital fructose and enzymes fibrinolysin and hyalouronidase which are not infrequently diminished by partial or complete effluvium seminis.

Twenty-four tests on 12 infertile couples were conducted at approximate ovulation time. (No case was rejected because of other infertility factors, male or female.) The criterion was deficient spermigration as indicated by the cervical mucus sperm count at eight hours postcoitus (the Huhner test). In previous eight-hour postcoital tests, four showed no sperm per high power field, two showed five, and two showed ten. Table I shows the count of active sperm per high power field in the deep cervical mucus eight hours postcoitus and the percentage of active sperm survivors remaining in the spoon at the same eight hours postcoitus after varying lengths of contact time of cervical mucus and ejaculate in the spoon.

TABLE I.—EIGHT HOUR SURVIVAL OF SPERM

Number of tests	Spoon contact	Average sperm/HPF	
		cervix	spoon pool
12	—	0–10	—
12	1 hour	18	70%
8	2 hours	65	62%
3	3 hours	100	66%
1	5 hours	125	50%

Semen collection by the spoon has none of the disadvantages of the condom-coital method that is notoriously deleterious to the sperm motility and viability. It has none of the personal, esthetic or moral objections raised by not a few men to coitus interruptus and masturbation. The cervical spoon specimen sperm are true survivors at body temperature of the sperm invasion process. The spoon method as described meets the approval of church moralists for it is proconceptive, permits marital intercourse and enhances spermigration. The spoon should be useful to aid deep deposition of seminal fluid in such male deficiencies as hypospadia, small penile size, premature ejaculation, small volume ejaculation and oligospermia, by providing a protected trough for the ejaculate to reach the cervix. 13 references. 1 table. 1 figure.—*Author's abstract.*

The Value of the Cytologic Smear in the Diagnosis of Cancer. *Ruth M. Shushan, New Orleans, La.* New Orleans M. & S. J. 101:108-12, September 1948.

The cytologic smear is a new tool through which we hope to make possible the earlier diagnosis of a number of malignancies to which this method is applicable. The positive cytologic smear is not meant to supplant the biopsy, but should, whenever possible, be confirmed by biopsy. Our present modes of treatment for malignancies are effective only when our diagnoses are made in the early stage of the disease. Any method through which we are enabled to make an earlier diagnosis of cancer deserves our most serious consideration.

The cytologic smear has several limitations as a general diagnostic procedure. First, it is applicable only to those regions of the body which produce material from which a smear can be made. And second, we must make our diagnoses from the characteristics of desquamated cells and groups of cells without actually seeing the invasion of tissue by these malignant cells. The advantages of the method are numerous. Little equipment is needed for making the smears. The procedure is not unpleasant to the patient and can therefore be repeated whenever necessary and can be used to screen large numbers of cases. The smear is an excellent method for follow-up of cases after surgery or radiation. The smear often picks up carcinoma in situ before the appearance of symptoms or lesions and is often positive before any other test is diagnostic.

The original work of George Papanicolaou on vaginal and endocervical smears has been confirmed by many workers. The total error of four large groups of cases is 1.4 per cent. The greatest source of error for the gynecologic group is in reporting false-negatives in early carcinoma of the fundus. It is possible to obtain positive smears in sputum of some cases of carcinoma of the lung before roentgenograms show a lesion. Papanicolaou and Wandell report finding malignant cells by smear in 84 per cent of cases of carcinoma of the lung. Malignancies of the genitourinary tract can be accurately diagnosed by cytologic smear in about 95 per cent of positive cases and 91 per cent of negative cases. Carcinoma of the stomach offers more technical than diagnostic problems. At the present time positive smears have been reported in two-thirds of proved cases of carcinoma of the stomach. The cytologic method is also applicable to ascitic and pleural effusions and other exudates and is believed to be more accurate than the older methods. 26 references. 2 figures.—*Author's abstract.*

SURGERY

Blood Volume Depletion in the Chronically Ill Surgical Patient. *Sidney T. Scudder, Evans Speer and Donald L. Custis, Virginia Mason Hospital, Seattle, Wash.* Northwest Med. 47:740-43, October 1948.

The chronically ill patient with weight loss and debilitation presents a complexity of clinical problems. He has long since been recognized as a poor surgical risk. He is more susceptible to shock, less able to tolerate hemorrhage and more prone to develop certain postoperative complications. He is intolerant of so-called physiologic saline and displays fluid and salt retentions. Clark, Lyons and their associates term this syndrome chronic shock and note that the greatest correlation exists between increased susceptibility to shock and blood volume. The features common to the state of chronic shock are: (1) normal intravascular capacity; (2) diminished circulating blood volume; (3) ability to tolerate large amounts of transfused blood; (4) increased interstitial fluid volume; (5) normal capacity to withstand even heroic operative procedures after quantitative transfusion replacement. Isolated blood counts and protein determinations are misleading in the chronically ill surgical patient. For in the presence of low blood volume there is, by definition, a deficiency of red cells and blood proteins which may be masked and, therefore, there may be no clue as to the total mass of such elements. There is a widespread belief that the need for blood replacement may be judged empirically or on the basis of the hematocrit. Too, there has been considerable dissatisfaction over the present method of blood volume determination. For these reasons few laboratories are able to measure blood volume.

The authors sketch the basic concepts and methods which have led to the use of T-1824 or Evans' Blue and show reason to suggest that this determination has clinically reasonable accuracy and requires little more time and effort than that required for many common laboratory procedures. Normal plasma volume obtained by this method is 41 to 49 cc. per kilogram, or about 2,900 to 3,400 for a 70 Kg. man. Knowing the plasma volume, the various blood constituents can be described in their absolute values. Blood volume deficits in depleted patients should be calculated on the basis of a standard for the usual weight prior to illnesses. Using this standard Clark and Lyons found a 5 per cent error in cases comprising obesity, substandard pre-illness weight, and those in whom accurate weight in health cannot be established. In such instances values based on standard weight for sex, age and height are recommended. The marked tendency to fluid retention and edema has frequently been noted in the chronically debilitated patient, despite apparently normal osmotic relationships at the capillary membrane. The chronic shock patient has been showed to have an increased interstital fluid volume which may occur to such a degree that in spite of the loss of tissue mass the patient's weight may be normal or above.

The work of Coller and Lyons is reviewed and the significance of their evidence of excessive retention of sodium, chloride, and water in cases of

chronic shock is discussed with emphasis on the sodium. Each 7 grams of salt retained without sufficient fluids requires a liter of water to satisfy tonicity. This fluid is, of necessity, mobilized from the intracellular compartment and causes a relative intracellular dehydration, a factor which may influence wound healing as greatly as does the interstitial edema. The physiologic bases of sodium retention under these circumstances are discussed in the following order: (1) primary or secondary renal retention; (2) the effect of the antidiuretic hormone; (3) the desoxycorticosterone-like hormone of the adrenal cortex; (4) capillary permeability; (5) protein dilution.

Two cases are cited from the Virginia Mason Hospital, both elderly people with weight loss, carcinoma, low blood volume. They are noted to be the type of patient who comprised the bulk of the high surgical mortality of a decade ago. Their blood volumes were replaced quantitatively preoperatively. They exhibited no significant change in pulse or blood pressure during extensive surgical procedures and their postoperative courses were uneventful. The risk of surgery in the presence of chronic shock cannot be overemphasized because the patient is exposed to blood loss when he can least afford it. With his already increased interstitial fluid volume he is unable to withstand the increase in capillary permeability which usually follows surgery. His wound healing is compromised by a quantitative anemia, and lastly the negative nitrogen balance which follows all major surgery is superimposed upon a body already depleted of its protein reserves. Because the results of quantitative blood replacement have been so consistently satisfactory, we urge that this value be determined in all chronically ill patients for whom surgery is contemplated. We wish to reemphasize that only quantitative replacement is enough and that this cannot be accomplished without evaluating the blood volume and its changes during therapy. 15 references.—*Author's abstract.*

The Postoperative Care of Hemorrhoidectomies. *Angelo J. Caliendo, Norwegian Hospital, Brooklyn, N. Y.* M. Times, New York 76:253-54, June 1948.

Fear of postoperative pain has been one of the patient's greatest objections to hemorrhoidectomy. A method of diminishing this discomfort is described. Careful technic is essential as unnecessary trauma causes postoperative pain. The method described is a modified Miles operation. Preoperatively and as soon as 50 to 75 mg. of spinal anesthetic have been injected, 10 cc. of an oil-soluble anesthetic is injected through a posterior midline puncture into the lateral border of the external sphincter ani, 5 cc. in each side. This supplements the spinal anesthetic by anesthetizing the inferior hemorrhoidal nerve as it enters the muscle and relaxes the sphincter for five to ten days postoperatively. The oil must be injected slowly as the needle is withdrawn, being careful not to enter a vessel with the needle. The oil must not be placed too superficially or immediately beneath the skin or mucous membrane as oil deposits will then be formed which press on the tissue circulation and interfere with healing. A fresh mixture of hydrogen peroxide

2 ounces and sulfanilamide powder 2 Gm. is poured into the anal canal after operation to cleanse the operative area. This also inhibits anaerobes and dissolves clots. No drain or gauze packing of any kind is left in the rectum. Observations on over 100 cases in which gauze, rubber drain or tube were placed in the anorectal area showed it acted similarly to a foreign body inside the uterus and caused continuous spasm. A pressure dressing of a roll of gauze is applied instead over the anus and the buttocks strapped tightly over it. This prevents excessive postoperative perianal edema and aids in hemostasis. This dressing is left in place forty-eight hours if possible. It may be removed earlier if the patient complains of inability to expel flatus but this can usually pass around the dressing.

After the patient leaves the operating room, morphine sulfate 1/6 grain every four hours is ordered if absolutely necessary for pain. A single dose is often sufficient and sometimes none is required. Sulfasuxidine 1 Gm. four times a day for four days is given both for its antibiotic properties and because it keeps the stools soft so that a voluntary bowel movement usually occurs the third or fourth postoperative day. Only 4 in 100 cases went longer and needed enemas. No cathartics or enemas are given postoperatively if they can possibly be avoided. Mineral oil 1 ounce twice a day is started the third day to supplement the sulfasuxidine. The patient is made ambulatory the second day, when the pressure dressing is removed, and given hot sitz baths ten or fifteen minutes twice a day. These are a great comfort, especially after the first bowel movement. The patient is permitted to stand alongside the bed every six hours for the first two days to try to void. This, plus the sphincter relaxation and absence of drains, has decreased the need for catheterization. The postoperative diet is fluid for the first twenty-four hours and then a low residue diet up to the fourth day, after which a full diet is allowed without spices or alcohol. The patient is usually discharged the fifth or sixth day and biweekly digital dilatation with the well lubricated index finger done twice a week until healing has occurred. This insures good healing, breaks-up adhesions and prevents stenosis. The patients preoperative apprehension is materially allayed by careful advance explanation of what to expect.

Recent Developments in Water Balance. *John R. Robinson, Kankakee, Ill.* Am. J. Surg. 76:383-92, October 1948.

An effort is made herein to acquaint the general surgeon not versed in intricate physiology with a modern concept of fluid balance based on the clinical picture. An important concept in this endeavor is the makeup of the extracellular fluid. It is composed of organic solutes of small molecular size, inorganic electrolytes and organic protein fractions. Clinical concern is chiefly with the inorganic electrolytes. Disturbances of extracellular fluid equilibrium are: volume, composition and distribution. From the clinical standpoint those of volume are of chief interest.

The following is a classification of extracellular water imbalances: (1) extracellular salt deficit (usually seen where there is a persistent loss of sodium from the body, rarely exists alone and is usually associated with

water deficit and acid base imbalance); (2) salt water deficit with water excess (occurs with salt loss where replacement consists only of water given orally or intravenously); (3) extracellular salt water excess with water deficit (may be due to the overadministration of sodium chloride); (4) salt water deficit with water deficit (cause being the loss of extracellular fluid more rapidly than it can be acquired).

Healthy persons will eat from 2 to 9 Gm. of salt daily. This however is no reason to justify the giving of a similar amount parenterally to a sick patient. It is thought that habit rather than actual need governs salt intake. The actual daily need of salt is still undetermined but from the surgical standpoint it is not necessary to give salt routinely when no abnormal loss is occurring. It is thought advisable even to maintain a slight deficit of extracellular salt water. Evidence to support this contention experimentally can be observed in the collecting of excessive amounts of salt water exudate in areas of trauma. This principle will considerably lessen pulmonary complications and encourage healing. Healing and repair are definitely retarded in the presence of excessive edema. Normal, healthy adults are capable of handling large excesses of salt water but postoperatively we are usually dealing with patients who have suffered certain amounts of renal impairment and therefore do not handle salt normally. Because of this, excesses of salt may be harmful. The best method of determining excess or deficit of extracellular fluid is by clinical picture rather than laboratory findings; the latter vary with the deficit, rate of development and cause. A canvass of the methods and type of fluid administration carried out in the smaller community hospitals in the state of Illinois revealed the following abuses of these concepts in order of frequency: (1) overloading of the postoperative patient with normal saline (moderate to tremendous excesses being given); (2) failure to replace specific ionic losses by means of proper repair solutions; (3) use of parenteral fluid administration when oral fluid administration would have accomplished the same purpose; (4) failure to provide enough free water to maintain proper kidney function; (5) treatment of the patient based on laboratory rather than clinical findings. Repair solutions which are in common use are discussed with the forerunning statement that whenever possible repair solutions should be administered orally. A solution consisting of 3 Gm. of sodium chloride plus 1½ Gm. of sodium bicarbonate in a liter of water offers a satisfactory oral solution. Glucose solutions in distilled water are for nutritional purposes or to replace acute water deficits in the face of normal extracellular fluid. The amount of these solutions to be used depends upon the clinical picture of the patient. Sodium chloride solutions are best given in the form of 0.45 to 0.6 per cent as this is functionally more isotonic with tissue cells than 0.9 per cent sodium chloride which is probably only isotonic with the red blood cells. Saline should be replaced by giving mEq. for mEq. lost rather than by volume. The solution isonate contains sodium bicarbonate and sodium chloride, thus maintaining the buffer value of body fluids and reducing the work load of the kidney. Hartman's solution provides not only electrolytes, sodium, postassium and chloride but also racemic lactate which can be converted to bicarbonate and acts as

a buffer in the body. Sodium lactate solutions ranging from 1/6 to 1/2 molar are used for their diuretic and buffering qualities. A few specific examples of proper choice of repair solutions are cited, each illustrating one or more of the principles set forth in the text of the article. 19 references. 3 figures.—*Author's abstract.*

Two Improvements for the Dermatome. *David W. Robinson, University of Kansas Medical Center, Lawrence, Kans.* Plast. & Reconstruct. Surg. 3:621-22, September 1948.

Two new improvements for the dermatome are worthy of recommendation. First, the drum made of aluminum retains practically all of the cement so that the graft can be handled easily without adherence to itself or to gloved fingers. Second, a new setting and attachment for the knife blade is mechanically more accurate and obviates the need for the two adjustment screws. The experimental models were sent to the author for trial and are not improvements of his own. After a reasonable number of trials the two improvement features are recommended. 1 figure.—*Author's abstract.*

UROLOGY

The Treatment of Acute Renal Insufficiency. *E. E. Muirhead and J. M. Hill, Baylor Hospital, Dallas, Tex.* Surg., Gynec. & Obst. 87:445-56, October 1948.

Acute renal insufficiency may result from various causes but the most common seems to be prolonged hypotension usually due to oligemia. In the past the mortality rate for this nephropathy has been extremely high (80 to 90 per cent). The clinical course may be divided into three phases: (1) hypotension; (2) renal insufficiency (characterized by oliguria or transient anuria); (3) diuresis (characterized by a twenty-four hour urine volume of 5 to 10 liters with a prominent salt output at times). The renal lesions are associated with tubular degeneration or necrosis. Regeneration is well advanced by the eighth day. The mortality rate has been markedly lowered by altering the treatment according to the abnormalities of each phase.

During Phase 1, blood transfusions are given for the oligemia. During Phase 2 stringent observance of the fluid balance is conducted. The insensible water loss is estimated (1,000 to 1,500 cc.) and each day the water intake is limited strictly to this amount plus a volume equal to the urine volume of the day before. Complete starvation is prevented by making this fluid intake into a salt-poor high caloric liquid formula plus water soluble vitamins. Severe acidosis is prevented by means of periodic doses of sodium bicarbonate (4 to 6 Gm.) by mouth or by rectum. Excessive sodium bicarbonate intake is averted. Phase 3 requires an aggressive replacement of water and salt. Three to six days after the peak of diuresis the patient can usually be allowed to care for his own intake. Various grades of severity of this condition are emphasized. Criteria for ascertaining the relative severity are discussed. It seems evident that relatively milder cases may be made fatal by improper manage-

ment. Complications due to improper management may include: prolonged hypotensive state of the first phase may lead to other fatal complications despite renal recovery, as severe brain damage; insufficient blood replacement may also lead to anemia; excessive water or water-salt intake during Phase 2 may cause grave complications (mental aberrations, coma, pulmonary edema, death); failure to replace insensible loss may interfere with the phase of diuresis; improper replacement during the diuresis may cause advanced dehydration. 31 references. 4 tables. 2 figures.—*Author's abstract.*

Nonspecific Urethritis. *James Gray (Major, M.C., A.U.S.).* Bull. U. S. Army M. Dept. 8:728-32, September 1948.

A series of 78 cases of nonspecific urethritis occurring over a five month period is discussed. The condition is caused by obstructive urethral lesions; infection of the prostate, seminal vesicle or small glands emptying into the urethra; irritants introduced into the urethra; allergic types of discharge; discharge of undetermined origin. The most common irritant cause is the administration of prophylactic treatment. Great care must be exercised in making a diagnosis of nonspecific urethritis and especially in excluding gonorrhea as a cause. Patients in this series were between 18 and 30 years old and otherwise in excellent physical condition. Few were married. Most were extroverts with few inhibitions and frequent female companions. All drank fairly large amounts of alcoholic liquor once or twice a week. Their histories showed that from twelve hours to one month elapsed between time of exposure and appearance of symptoms. Some had a history of nonspecific discharge for many months. Various previous treatments had been given including repeated sulfonamides, calcium mandelate, urotropin, pyridium, urinary alkalinization and acidification; irrigations with protargol, silver nitrate and potassium permanganate; penicillin in 100,000 to 400,000 unit doses, repeated several times in 15 cases.

Treatment with tyrothricin was commenced in 52 cases who were observed over a four month period. A solution of 500 mg. per cubic centimeter was used. Injections of 8 to 10 cc. were given in a prophylactic syringe, retained for five minutes and expelled. A total of 100 cc. was given each morning until no further discharge was noted during a day. The examination was repeated one week later unless there was a recurrence beforehand. Urethral discharge disappeared in four to six days in 26 cases. Gram-positive organisms were repeatedly found on examination of urethral smears and cultures in 20 cases but no recurrence of urethral discharge developed in three months. Gram-negative, gram-positive or both organisms were found in examinations of 6 patients and these had multiple recurrences over a three month period, all following excessive sexual activity or consumption of considerable alcohol or highly seasoned foods. No clinical improvement occurred after tyrothricin in the other 16 cases. Nine of these failures had urethral obstructions and cleared up after their removal. The remaining seven failures had gram-negative infections. Patients given tyrothricin complained of a moderate burning sensation during the irrigation and occasional dysuria persisting for several hours. Urinary smears were checked

for trichomonas but centrifuged specimens were not examined. 3 references.

Medical Treatment of Enuresis. *Victor B. Lombardini, Rudolph Heilpern and Jack R. Morrison, Renton, Wash.* Northwest Med. 47:805, November 1948.

A common complaint of parents of enuritic children over 5 years old is that the child sleeps so soundly that he can hardly be awakened. The incontinence of marked alcoholic intoxication illustrates the fact that incontinence is largely a result of impaired sensory perception. Treatment of bedwetting in children 5 to 15 years of age by elixir of d-desoxy-ephedrine hydrochloride has been quite successful in a series of 15 patients over a ten month period. Dosage was 4 to 8 Gm. at bedtime. Nearly all cases improved during the first week. Treatment was continued three to four weeks, no other treatment being given during this time. Basis of this treatment is that making the child sleep less enables him to become aware of the bladder distention and either awaken and void or exert enough control to check micturition.

Undescended Testes. Cause and Treatment. *Edward W. Beach, Sacramento, Calif.* J. Urol. 60:623-30, October 1948.

Treatment is described of 46 cases of undescended testicle, as seen in private and military practice. Thirty-five of these cases were treated by operation. There are two types of nondescent: hormonal and mechanical. In the first, hormone therapy is effective, but in the second it is only of diagnostic value and operation is essential. If no sign of descent follows administration of gonadotropin at the age of 8, surgery is indicated. Puberty seems the deadline for conservative treatment. In each case the type of surgery is controlled by anatomic deviations and by the age of the patient. Early operation minimizes the technical difficulties and assures best results. Orchidopexy and orchectomy are operations of choice. In this series orchidopexy was performed thirty-two times, using the Torek, Bevan, Wolfer and Cabot-Nesbit methods. Orchectomy was performed seventeen times, always when there was a sound contralateral organ, because of the impossibility of carrying out adequate orchidopexy and in order to obviate eventual malignancy in an ectopic testis. In unilateral involvement, after the age of 28 years, the testicle was removed if it showed gross atrophic changes. In bilateral involvement, every effort was made to preserve at least one gonad. Anatomic factors associated with retention are listed and substantiated by methods of repair utilized in the author's operative series. Hernia or potential hernia existed in almost every case and was treated by appropriate technic. No torsion or tumor of the testicle was present, and no other abnormality of the genitourinary tract existed in this series. 29 references. 2 tables.—*Author's abstract.*

The Effect of Streptomycin, Local and Systemic, on Contaminated, Sutured Wounds. *Charles K. Kirby, James A. Dull, Harold E. Fulton, Edward B. Price and Harold A. Zintel, Schools of Medicine, University of Pennsylvania, Philadelphia, Pa.* Surgery 24:647-52, October 1948.

Experiments have been done in dogs to determine the effectiveness of

streptomycin in controlling local and invasive traumatic wound infection. In the control animals the inoculation wounds with mixed organisms resulted in 100 per cent wound infection and 55 per cent mortality. In the experimental animals streptomycin was used in three ways: (1) local application in an ointment base at the time of inoculation with the organisms; (2) local application eight hours after inoculation with the organisms; (3) intramuscular injection every six hours, without local application, for six days after inoculation with the organisms. Streptomycin applied locally or parenterally was very effective in controlling both local and invasive infection. 11 references. 2 tables.—*Author's abstract.*

Medical Treatment of Urinary Tract Infection. *Charles A. Noble, Jr., University of California, San Francisco, Calif.* California Med. 68:443-45, June 1948.

Treatment of pyelonephritis or cystitis should be by the general practitioner or internist. Effective therapy requires bacteriologic diagnosis by smear or culture. In treatment of acute infections parenteral fluids are often given too fast and without regard for content of salt. Antibotics include streptomycin, penicillin, sulfonamides, mandelic acid, methanamine, pyridium, neoarsphenamine. Sulfonamides, even in small doses, may produce grave reactions, and patients require constant laboratory and clinical supervision. When equally effective, other agents should be preferred to sulfonamides. If disease is refractive to treatment, and urine does not become and stay sterile, search for obstruction must be made with the aid of the urologist. —*Author's abstract.*

OTOLARYNGOLOGY

Nasal and Throat Medication. A Survey of Current Trends. *Noah D. Fabricant, Chicago, Ill.* Laryngoscope 58:793-806, August 1948.

Each medical generation is familiar with various therapies that have run the gamut of overenthusiasm and disillusionment. Unrestrained enthusiasm for penicillin and the sulfonamides in the treatment of nasal and sinus infections is gradually giving way to sober judgment and judicious selection. Judicious selection is aided materially by animal experimentation as a basis for observing the histophysiologic effect on nasal tissues of various nasal preparations. Long standing chronic sinus infections, for the most part, are resistant to penicillin and sulfonamides because these drugs have difficulty in adequately penetrating thickened, fibrous mucous membranes resulting from repeated or prolonged insults. Not all infections of the nasal sinuses require treatment with penicillin or sulfonamide compounds. As in the case of the sulfonamides, promiscuous use of penicillin is unwarranted in trivial infections. Nasal sensitivity to vasoconstrictors can be checked rapidly by discontinuing the offending medicament. No rational employment of nasal medication will countenance promiscuous overindulgence. Like lipoid pneumonia and argyrosis, vasomotor rhinitis medicamentosa is man-made; its saving

grace is the promptness with which cures are established. Just as sulfonamides simplified the problem of acute otitis media, so have the antihistaminic drugs provided palliation in the treatment of allergic rhinitis. While it is unsound to administer any drug to allergic patients on a routine basis rather than when the particular need arises, it is reasonable to assume that the antihistaminic era is in for a period of abuse. No one can prognosticate with certainty what will happen to certain phases of the practice of allergy when improved antihistaminic drugs with a spreading horizon of effectiveness are introduced into clinical practice. Astute allergists, like astute rhinologists, realize that they are living in a changing world.

In current years considerable doubt has been cast on the value of gargles in acute tonsillitis and acute pharyngitis. Although popular with the laity and with some manufacturers of so-called throat antiseptics, the use of a gargle has no real therapeutic foundation since it cannot reach the tonsillar and posttonsillar areas. Likewise, painting the throat with antiseptic solutions during acute infections is known to have only psychic value. While not as yet established with any degree of finality, it does seem that some of the newer technics of introducing throat medication possess, at the very least, the ability to convey medicaments closer to the sites which are to be treated than the older process of gargling. In general, it is dangerous to rely upon local medication alone in the treatment of severe infections of the throat. The chief reliance should be placed on chemotherapy and antibiotics in adequate dosage. Inadequate dosage and indiscriminate usage can breed resistant bacterial strains. Their uses are also limited by the development of allergic reactions. 10 references.—*Author's abstract.*

The Post-Operative Treatment of the Radical Mastoid Operation. *Gilroy Glass, Nottingham, England.* J. Laryng. & Otol. 62:606-7, September 1948.

End results of the radical mastoid operation are largely in direct proportion to the meticulous after care given. The sulfonamides were objectionable because the powder tended to cake and contact of their solutions was too short to be beneficial. The following formula was finally devised: sulfathiazole, 1.32 Gm.; zinc oxide, 15.00 Gm.; lanette wax (s. x.), 4.12 Gm.; paraffin molle alb., 4.12 Gm.; aqua ad., 30.00 Gm. This ointment has a similar consistency to shaving cream, is water soluble, does not cake or dry, is simple to apply and free of discomfort to the patient.

The cavity after operation is gently packed with ribbon gauze soaked in liquid paraffin or flavine emulsion, or a soft rubber tube is placed in the meatus. The wound is first dressed on the fifth day, the packing or tube removed and the case thereafter treated with the sulfathiazole cream. This is squirted into the cavity by a 2 cc. syringe with its nozzle protected by a short rubber tube. This prevents pain or damage should the inner wall of the tympanum be touched. The cream is washed out the following day with 30 per cent alcohol in saline, using a similarly guarded 10 cc. syringe. Another 2 cc. of sulfathiazole cream is then inserted. These treatments are continued daily until the cavity is dry. Use of this dressing for two years showed it to be absolutely painless and did not require great skill or special equipment.

Formation of excessive granulation tissue is inhibited while ultimate healing and epithelization is quicker. No case of skin sensitization to sulfathiazole occurred in this series.

ORTHOPEDICS

Streptomycin in the Treatment of Chronic Infections of Bone. *John C. Wilson, Jr. (Capt., M.C., A.U.S.), Percy Jones General Hospital, Battle Creek, Mich.* J. Bone & Joint Surg. 30-A:931-44, October 1948.

A clinical study was carried out to determine whether or not the use of systemic and local streptomycin, in addition to thorough sequestrectomy and meticulous wound care, would hasten the healing of wounds in patients ill with osteomyelitis of long duration. Twenty-five patients were chosen who had chronic discharging sinuses which led to bone. Purulent drainage had persisted for an average of nineteen months and had confined these patients to hospital existence and in most instances to a life in bed. These patients had had extensive therapy for chronic septic bone disease. Numerous sequestrectomies, courses of Orr treatment, penicillin, muscle flap transfers and Thiersch grafts had been tried as well as many wound sterilizing agents.

In an effort to heal these patients a plan of therapy was evolved based upon four surgical principles: (1) thorough investigation of the wound bacteria; (2) radical sequestrectomy after adequate preparation of the patient; (3) streptomycin and penicillin prior to, during and after surgery; (4) meticulous postoperative wound care to prevent contamination.

The bacterial flora was mixed in all but 2 cases. Proteus vulgaris was the most common gram-negative organism found. Staphylococcus aureus, coagulase positive, was the most common gram-positive organism cultured. Preoperative preparation consisted of high caloric diets, oral administration of vitamins and iron preparations when indicated, transfusions of whole blood in the presence of anemia and, occasionally, the intravenous infusion of plasma and Amigen to correct hypoproteinemia. Twenty-four hours preoperatively the intramuscular injection of streptomycin was begun if the organisms were sensitive to 16 micrograms of the drug or less per cubic centimeter of media. One-half gram of drug was given every four hours for a period of ten days. Dosages in excess of 3 Gm. a day provide no additional benefit regardless of the severity of the infection. The course of streptomycin by injection was limited to ten days, for further therapy leads to higher percentage of toxic reactions and the bacteria develop resistance to the drug with such amazing rapidity that blood levels which can be obtained are no longer effective. For local use a mixture of streptomycin and dry, powdered, human plasma was used. Under sterile precautions, bottles were prepared which contained 0.5 Gm. of streptomycin and 4 Gm. of plasma. Plasma was chosen as the medium for it aids in maintaining wound *p*H nearer optimum for the action of streptomycin and the anticoagulant agents present in plasma aid in controlling ooze from wound surfaces. Sequestrectomy is the most important single part of treatment. All necrotic bone must be removed or else

no amount of streptomycin or other agent will heal these wounds. A thorough sequestrectomy was performed in all cases. All necrotic bone and grossly infected tissue was excised. No overhanging ledges of bone were left. The wound was irrigated with normal saline and then the streptomycin-plasma mixture was dusted into the wound. In addition 200,000 units of local penicillin in 5 cc. of saline was poured into the wound. The wound was lined with glass cloth and a voluminous sterile dressing applied. Glass cloth is an ideal wound dressing, for the fine mesh prevents the growth of hyperabundant granulations. The cloth is nonirritating. Plaster was put on the extremity only if bony union was tenuous or absent. Postoperatively the wounds were not disturbed for fourteen days. They were then dressed at weekly intervals in the operating room using strict aseptic technic. The wounds were irrigated with saline; streptomycin and plasma as well as penicillin were again placed in the wound as at the time of surgery. Local streptomycin should be used until the wound heals. In addition intramuscular penicillin was given pre- and post-operatively depending upon the severity of the gram-positive infection. All patients on streptomycin showed perioral anesthesia, a symptom of no clinical significance. A skin rash developed in 1 patient; this subsided when the drug was discontinued. Four patients complained of vertigo and 2 of these had associated deep pain in the ears. Such symptoms demand the cessation of intramuscular but not of local therapy. Of the 25 cases, healing occurred in 21. Four were failures and the extremities were amputated. Streptomycin is no panacea for the treatment of chronic osteomyelitis. The drug is no replacement for adequate surgery. When combined with thorough sequestrectomy, it is beneficial in the promotion of healing. No claim is made that a cure has been obtained in any case. No statement is made with regard to the recurrence of drainage. The series is presented at this time because of the excellent response of the patients to this type of therapy. 7 references. 2 figures. 4 charts.—*Author's abstract.*

Corrective Osteotomy and Capsulectomy in Treatment of Malunion of Metacarpal Fractures. *Carruth J. Wagner, U. S. Marine Hospital, San Francisco, Calif.* Mil. Surgeon 103:344-54, November 1948.

Because of lack of knowledge about the functional anatomy of the hand, fractures of the metacarpals are frequently misarranged and malunion results in: (1) palmar angulation of the distal fragment; (2) rotational deformity at the fracture site; (3) contracture of the collateral ligaments of the proximal joint of the involved finger. These deformities seriously disable the hand as the palmarly displaced head of the metacarpal results in a painful mass in the palm, which interferes with grasp; the rotational deformity places the involved finger in the flexion arc of the adjacent finger and the contracted collaterals prevent flexion of the proximal joint of the affected finger. This deformity almost always results from primarily treating the fracture by hyperextending the proximal joint of the finger. The intrinsics pass into the finger volar to the proximal joint. Hyperextension of the finger places these under tension which increases the palmar displacement of the distal fragment. Full flexion of the proximal joint relaxes the interossei and, through

the collateral ligaments, locks the distal fragment to the proximal phalanx, allowing its easy control in reducing the fracture. Treatment of the fracture in this position on a Boehler splint is recommended. Correction of the deformity is not difficult. The dorsal aspect of metacarpal is exposed and the collateral ligaments of the proximal joint are approached and excised, as advised by Bunnell, through a longitudinal incision in the extensor tendon. This releases the proximal joint, and the deformity in the metacarpal is corrected by a V-osteotomy. Corrected position is maintained by an intramedullary pin inserted through the articular head of the metacarpal. Rotational deformity is corrected by a Kirschner wire driven through the distal fragment into the adjacent metacarpal. Finger is held in full flexion at the proximal joint, and ends of pins bent and left subcutaneous to allow easy removal when union of the osteotomy occurs. Seven cases, 1 with malunion of four metacarpals, have been corrected as above with uniformly good cosmetic and functional results. 3 references. 2 figures.—*Author's abstract.*

Patella Fractures. A Method of Wiring. *Arthur A. Michele and Frederick J. Krueger, United States Marine Hospital, Stapleton, Staten Island, N. Y.* Surgery 24:100-102, July 1948.

The authors present a method of open reduction and primary closure with double loop, single wire fixation of selected patella fractures. Of 269 fractured patella treated, 30 were selected for this wiring method and good end results were obtained. The authors claim their method not only reduced final morbidity but also enhanced early ambulation and reduced hospital cost and absenteeism almost to half by comparison to other methods. 2 figures.—*Author's abstract.*

The Treatment of Supracondylar Fractures of the Humerus by Kirschner-Wire Transfixion. *Alvin L. Swenson, Phoenix, Ariz.* J. Bone & Joint Surg. 30-A: 993-97, October 1948.

Extreme swelling makes this condition extremely difficult to treat in children. Closed reduction and immobilization in acute flexion may be impossible because of the danger of Volkmann's ischemia and the fragments frequently slip if immobilized in the right-angle position. Oblique and other supracondylar fractures may be difficult to hold in position even when there is excessive swelling. A method of holding the fragments in place by Kirschner wire transfixion is described. Reduction of the fracture is checked by roentgenograms and, if satisfactory, the elbow is held in the acutely flexed position to maintain the reduction even though the radial pulse is temporarily obliterated. The elbow is prepared for operation, placed to extend beyond the arm board, 2 Kirschner wires of slightly different diameters are selected and a short Kirschner wire drilled through each condyle across the fracture and into the humeral shaft. The condyles may be difficult to palpate if there is much swelling but the bony landmarks can usually be identified by pressing away some of the edema. The wires are directed slightly posteriorly and inward at an angle of 30 or 40 degrees with the humerus in order not to miss the shaft. The wires should not enter the elbow joint but the

joint may be punctured if they are not inserted laterally just beneath the condylar ridges, if they slide off during the drilling, or if they are directed inward at more than a 30 to 40 degree angle. No complications usually result, however, unless infection is introduced. The wires should penetrate the opposite side of the humerus about 1½ inches above the fracture. Position of the wires is checked by roentgenograms, the different diameters of the wires enabling their easy differentiation. Injury to the ulnar nerve must be avoided. When the wires are satisfactorily placed, they are cut off

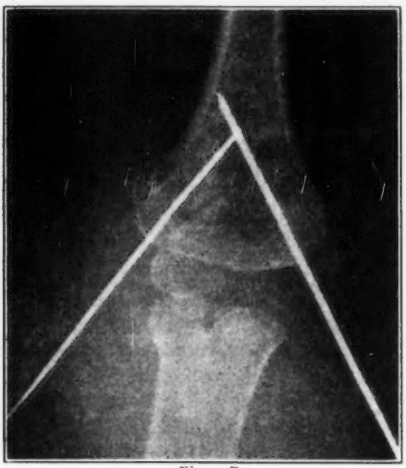

Fig. 2-B

Fig. 2-C

Figs. 2-B and 2-C: Roentgenograms show position of fracture after second closed reduction and insertion of transfixing wires. Note that one wire is slightly larger than the other. Transfixing pins are shown within the humeral shaft, holding the distal fragment in good position. *By courtesy of The Journal of Bone and Joint Surgery*

at the skin surface, the skin pulled over them, a sterile dressing applied to cover the elbow and a posterior splint applied with the elbow in about 90 degrees flexion. The wires are removed in about three weeks and the splint continued a few days longer.

This method has been successfully used in 10 cases of supracondylar fractures in children having extreme swelling about the elbow and first seen two to six days after injury. Olecranon-wire traction was unnecessary in any case. A second reduction was necessary in 1 case because one wire was outside the shaft and the fracture slipped. 1 reference. 7 figures.

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N. W. VAUX, M.D.
J. YOUNG, M.D.

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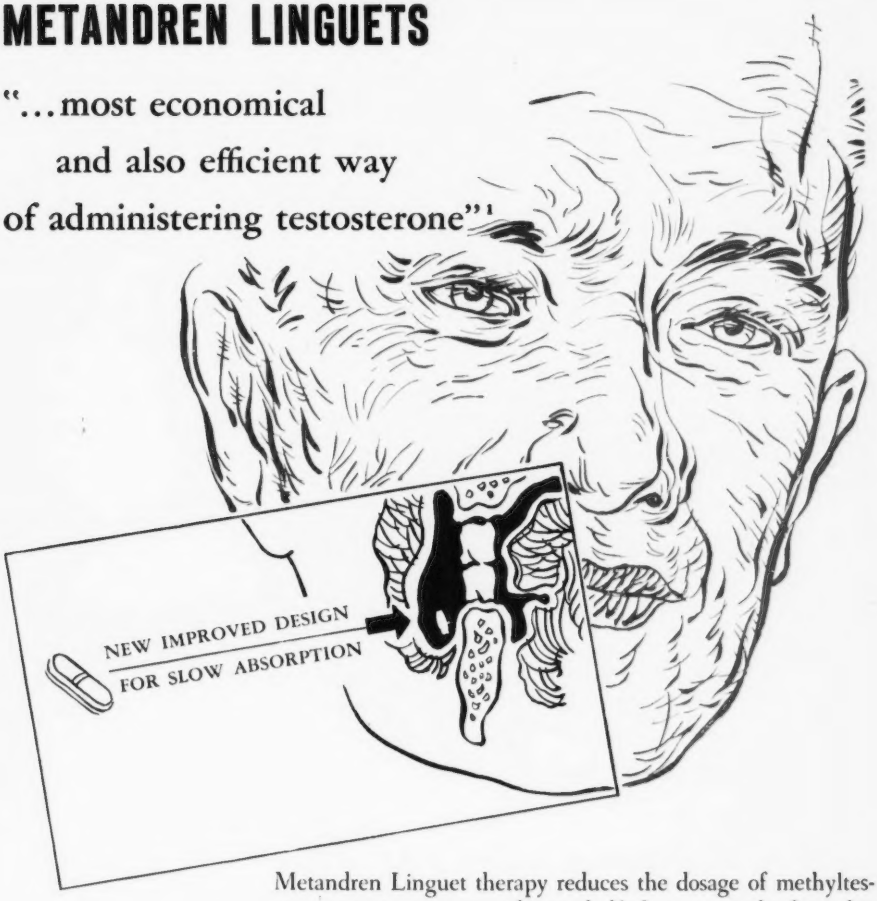

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1. Lisser, H.: Calif. & West. Med., 64: 177, 1946.

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